

Gas Infrastructure Workshop 2

R.20-01-007: Long Term Gas Planning Rulemaking, Track 2

Staff Workshop

January 24, 2022



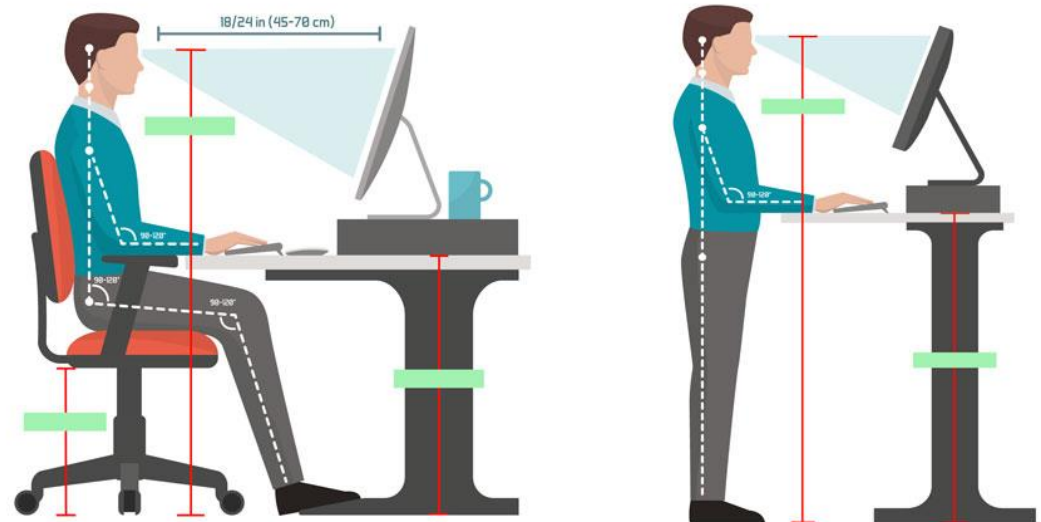
California Public
Utilities Commission

Commissioner Remarks

Workshop Logistics

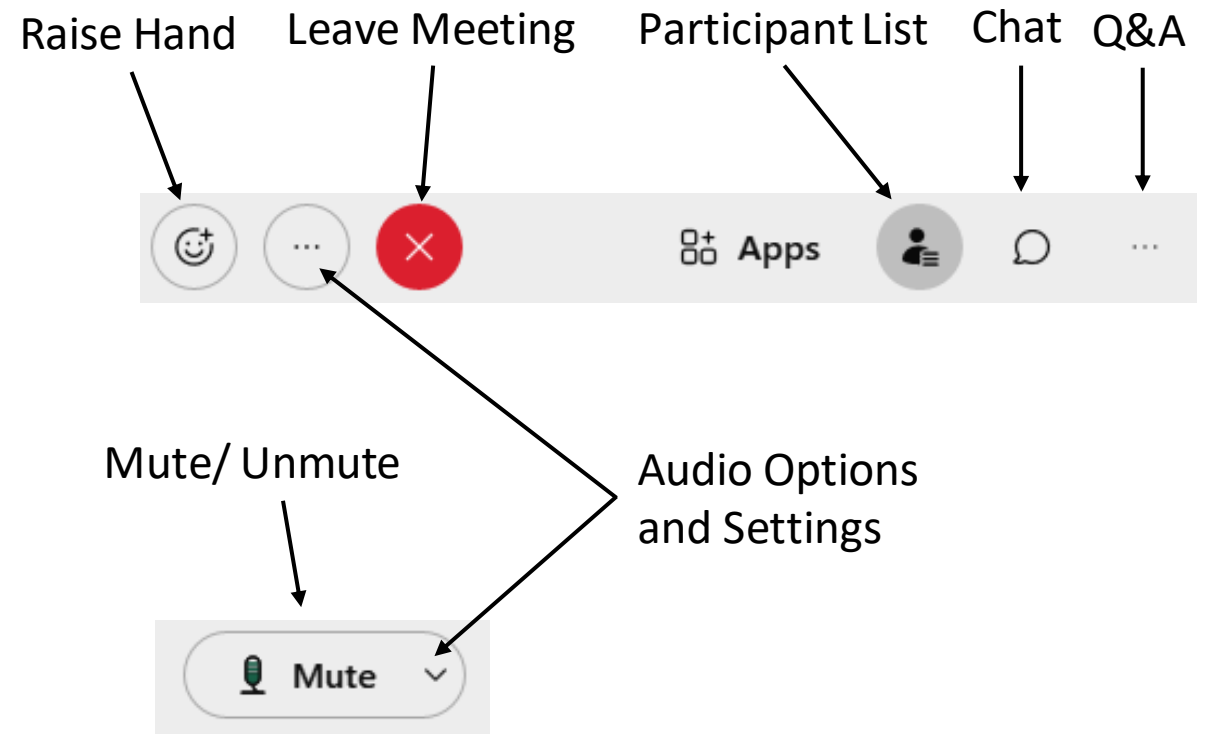
- Online only
 - Audio through computer or phone
 - Toll-call-in: 1-415-655-0002
 - Access code: 2497 283 3080
 - ***This workshop is being recorded***
- Hosts:
 - Energy Division Staff:
 - Jean Spencer
 - Kristina Abadjian
 - Karin Sung
 - Renee Guild

- Safety
 - Note surroundings and emergency exits
 - Ergonomic Check



Workshop Logistics

- Today's presentations (.pdf) and agenda are available on the CPUC's long-term gas planning OIR website.
- Please submit questions for panelists in the chat box or use the "raise hand" feature to verbally ask a question.



Ground Rules

- Workshop is structured to stimulate an honest dialogue and engage different perspectives.
- Keep comments friendly and respectful.
- Chat feature is only for Q&A or technical issues. Please do not start or respond to sidebar conversations.

Jessica Allison, CPUC

Energy Division

Building Decarbonization & Renewable Natural Gas Section



California Public
Utilities Commission

Overview

1. Electrification: the Non-Pipeline Alternative
2. Goals of Targeted Decommissioning
3. Community Characteristics
4. Equity Considerations
5. Pipeline Characteristics

Electrification – A Non-Pipeline Alternative

- Responding to SB 1477, the CPUC initiated R.19-01-011 to assist in meeting California's ambitious GHG reduction goals.
- As a clean, effective, and market-ready solution, many of the CPUC's GHG reduction efforts focus on the electrification of buildings.
- The majority of California homes use natural gas for space and water heating and natural gas is important to some commercial and industrial activities.
- To utilize electrification as a non-pipeline energy alternative, residential space and water heating will need to be transitioned.

Goals of Targeted Decommissioning

- Goals of targeted pipeline decommissioning could include:
 - 1) Maximizing public safety
 - 2) Minimize disruption to Californians
 - 3) Transition to a lower-GHG future with least possible cost
- Focusing on pipelines where favorable factors intersect may maximize investment benefits.
- Example: An ideal community may be one with aging gas infrastructure without electrical capacity constraints in a climate zone that maximizes the cost-effectiveness of heat pumps.

Community Characteristics

The community should have readily available and affordable energy alternatives. Specifically:

- 1) Customers should have informational, technical, and financial support to transition to electric end uses.
- 2) The electric grid should have generation, transmission, and distribution capacity to handle an influx of electric load.
- 3) Electric rates should be affordable, considering both the cost of service and customer ability to pay.

Already Electrifying Communities

- To minimize customer disruption, home and business electrification must occur prior to pipeline decommissioning.
- Focus on communities with high existing electric HVAC and water heating penetration, as they may require less transformation to be ready for pipeline decommissioning.
 - Customers targeted for electrification incentives
 - High existing AC utilization—homes equipped for higher electric loads
 - Early adopters
 - Communities bordering rural areas

Equity Considerations

- It's critical that communities identified in the CPUC's environmental and social justice action plan not get left with the cost of stranded infrastructure.
- Similarly, they shouldn't bear the burden of hasty electrification, premature pipeline decommissioning, or lack of choice.
- Whenever such communities meet the other criteria for pipeline decommissioning (I.E: transition support, electrical grid sufficiency, and affordable electric rates) they should be prioritized.
- If those conditions don't appear organically through time and experience with electrification, they may need to be created.

Pipeline Characteristics—Safety

- Public safety is the first and most critical consideration.
- Safety issues arrive as pipelines age, but also as a result of original material choice, like plastic pipelines (Aldyl-A).
- Injecting hydrogen into the pipeline creates an opportunity for renewable power-to-gas but presents new safety challenges.
- Decommissioning pipelines that pose future public safety threats or prevent the evolution of the gas grid should be prioritized.

Pipeline Characteristics—Repairs

- Avoiding costly pipeline replacements and repairs is a secondary objective to protecting public safety.
 - Maximizes value of initial utility / ratepayer investment
 - Reduces chance of wasted future investment as policies evolve
 - Provides easy to understand rationale for community
- Exceptions may be necessary for pipelines which serve hard-to-electrify industrial end uses, communities with serious electrical capacity constraints, or other challenging conditions.



California Energy Commission

Title: Gas R&D for Targeted Decommissioning

Presenter: Qing Tian, Senior Mechanical Engineer of the Energy System Research Office

Date: January 24, 2022

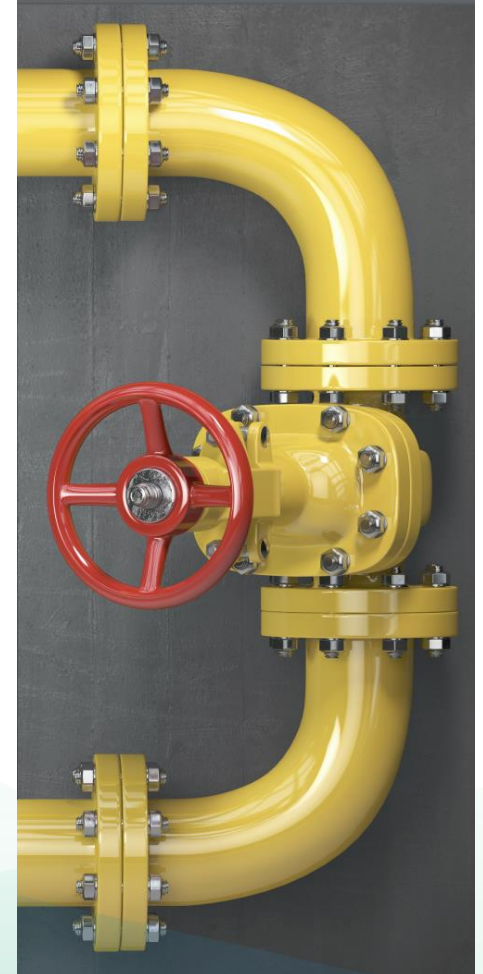


Outline

1. Gas R&D program

2. Research for targeted decommissioning

3. Future research





1. Gas R&D Program

- Public interest gas R&D advancing **decarbonization, safety and integrity** of gas infrastructure, **equity**
- Implementing state policy, CPUC guidance
- **\$24M/year** of gas ratepayer funds
- Project summaries:
<https://www.energizeinnovation.fund/>
- Future funding opportunities:
www.empowerinnovation.net



Safety



Decarbonization



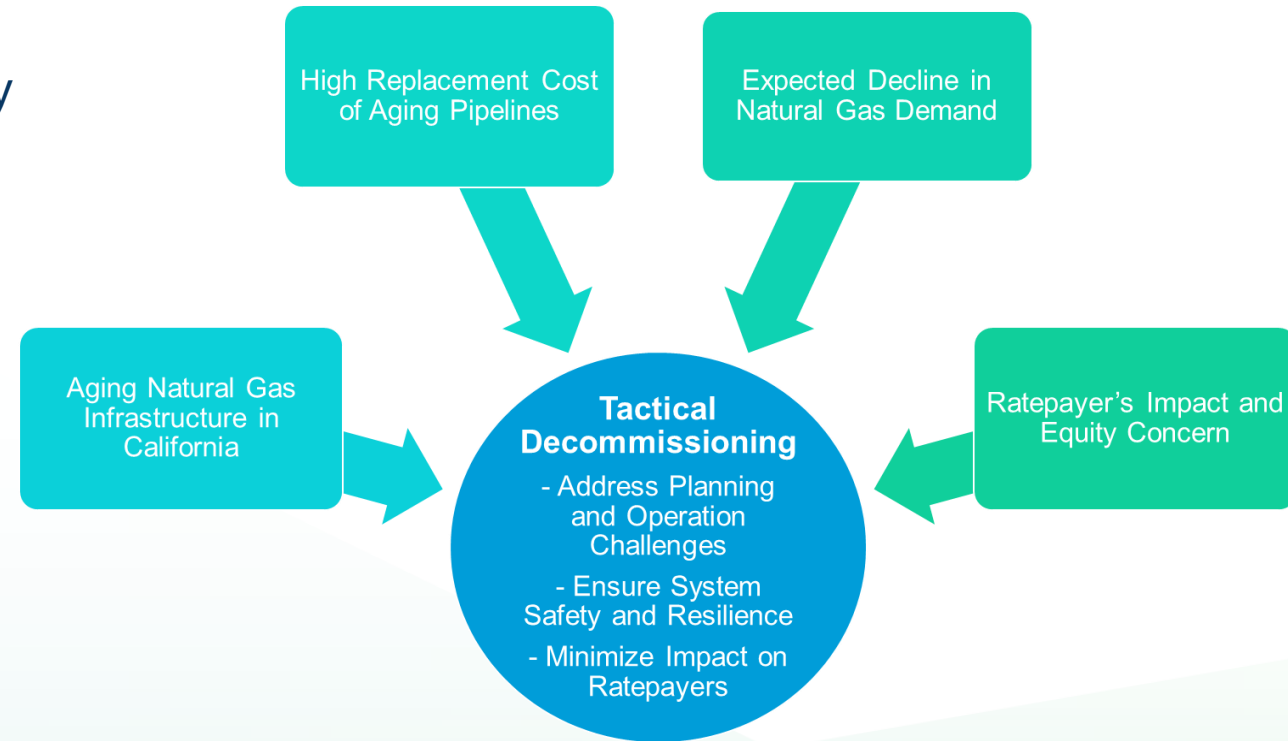
Equity



2. R&D Research for Targeted Decommissioning

Example Initiative Topics

1. Gas infrastructure analysis and strategic pathway to low-carbon energy
2. Analytics for pilot demonstration of strategic electrification and decommissioning of gas infrastructure
3. Data-driven tool for strategic and equitable decommissioning
4. Location-specific analysis of decommissioning
5. Scaled-up gas decommissioning pilots and integrated planning tool (pending approval)





Pilot Demonstration for Tactical Decommissioning

- Develop criteria and a framework for selecting decommissioning sites
- Explore methodologies and develop deployment plans for strategic decommissioning that balances decarbonization, consumer acceptance and safe operations
- Identify community priorities, perspectives, and paths forward on electrification and gas decommissioning
- Identify opportunities to achieve gas system cost reductions through tactical decommissioning

The map displays project sites in Northern and Southern California. The Northern California section includes logos for E3, PG&E, GRIDWORKS, and EAST BAY COMMUNITY ENERGY. The Southern California section includes logos for RAND, SoCalGas, gti, SOUTHERN CALIFORNIA EDISON, and LARC. The map itself shows locations such as Sacramento, Modesto, San Francisco, San Jose, Fresno, Bakersfield, and Los Angeles.

Northern California **Project Sites** **Southern California**




Development of Data-Driven, Actionable Tool to Support Strategic and Equitable Gas Decommissioning

- Collect detailed data about California's retail gas system.
- Provide a systematic framework for identifying promising sites for decommissioning.
- Construct tool to inform and enable spatial planning and decision-making for targeted decommissioning.
- Deliver publicly available products that present criteria and insights derived from application of the data driven tool.
- Active solicitation and deadline to submit applications: *2/25/2022*

GRANT FUNDING OPPORTUNITY

Development of a Data-Driven Tool to Support Strategic and Equitable Decommissioning of Gas Infrastructure

PIER Natural Gas Program



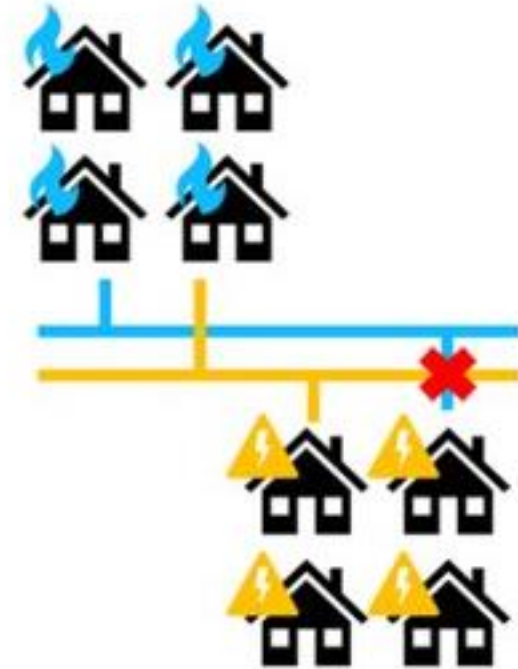
GFO-21-504
<http://www.energy.ca.gov/contracts/index.html>
State of California
California Energy Commission
November 2021

<https://www.energy.ca.gov/solicitations/2021-11/gfo-21-504-development-data-driven-tool-support-strategic-and-equitable>



Location-Specific Analysis of Decommissioning to Support Long-Term Gas Planning

- Assess implications of decommissioning for remaining segments of the gas system
- Bridge gap between high-level gas system planning and local decommissioning pilots
- Build capacity for collaborative and participatory approaches



Source: E3, The Challenge of Retail Gas in California's Low-Carbon Future



3. Future Research

- **Scaled-up Gas Decommissioning Pilots**
 - Facilitate large-scale pruning of distribution-level segments, including in under-resourced communities.
 - Support strategic gas transition investments for disadvantaged and low-income customers.
- **Enhanced Planning Tool**
 - Facilitate planning across a range of time horizons.
 - Consider cost impacts of gas and electricity system interactions.
 - Analyze potential roles of emerging zero-carbon energy sources.
 - Assess consumer and community-level energy choices.





Thank you

Qing Tian, Ph.D., P.E.

Energy Systems Research Office

Energy Research and Development Division

California Energy Commission

Phone: (916)776-0820

Email: Qing.Tian@energy.ca.gov

Gas System Planning OIR Workshop – Track 2

January 24, 2022

Mike Kerans - Director, Gas Distribution Integrity Management



Together, Building
a Better California



PG&E's approach on proactive decommissioning of gas distribution pipelines

PG&E looks forward to working with the Commission and stakeholders on a strategy for proactive decommissioning of gas pipelines.

1. PG&E supports thoughtful proactive decommissioning of gas distribution mains and services where it reduces GHG emissions, is cost effective for individual customers, and maintains a safe and reliable energy system with appropriate and equitable cost recovery.
2. As part of any decommissioning project, seek to provide attractive non-pipeline alternatives to customers through outreach and education on the various opportunities that different energy solutions can provide and meet our obligation to serve.
3. Seek partnerships with the communities and organizations in meeting the needs of DAC's and local economies.



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

Key Criteria to Support Proactive Decommissioning of Distribution System:

1) Decommissioning of service lines once a customer(s) have converted to electric appliances

Criteria: Community and customer interest in decommissioning to support long-term community objectives for economic, equity, and environmental concerns

2) Decommissioning of mains and service at the same time

Criteria: Risk reduction, Customer Feasibility, Affordability, Impacts to customer bills

3) Decommissioning of zones, Zonal Decommissioning

Criteria: Customer Feasibility, Affordability, Risk Reduction

GOAL: Reduce system risk, avoid stranded assets, and ensure intergenerational equity for gas distribution asset cost recovery.



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

- i. ***What pipeline-related characteristics should be considered when prioritizing distribution lines for decommissioning (e.g., age, safety condition, pipeline's role in serving industrial (hard to electrify) load, extent to which it has been depreciated, location, customer density, pipe material such as Aldyl-A, proximity to a source of renewable gas)?***
- Risk Reduction*** –includes age of pipe, safety, asset condition, and material types
 - Feasibility***
 - ❖ *Are customers willing to switch to alternative energy sources?*
 - ❖ *How many customers and type of customers will be involved in each decommissioning project?*
 - ❖ *Is the type of customer able to transition to an electric or alternative fuel source?*
 - Affordability***
 - ❖ *Cost neutrality of the project when compared to non-decommissioning*
 - ❖ *Correlates to customer density and gas usage*
 - Reliability and Resiliency of energy system***
 - Geography***
 - ❖ *Consideration of location of pipe to be decommissioned, in relation to the overall gas system*
 - ❖ *Tail ends of pipeline systems*



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

ii. **What community characteristics, such as designation as a DAC, should be considered?**

- Support by local governments to meet State's climate goals while balancing economic challenges, equity, and environmental concerns
- Impact to DAC customers, low-income customers, renters, multi-family customers, tribal lands, etc

iii. **What other criteria, if any, should be considered?**

- Availability of community funding sources to support customer upgrades

iv. **What goals should be considered when using these characteristics (e.g., cost savings, minimizing stranded assets, pipeline safety, net greenhouse gas reductions, environmental justice)?**

Commission will need to ensure pipeline safety while balancing the following goals among others

- Cost savings
- Net GHG reductions
- Cost and environmental impact on vulnerable customers
- Intergenerational and customer/socioeconomic equity, including mechanisms to address phased departures from the gas system
- Avoidance of stranded assets



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

v. *What non-pipeline alternatives should be considered?*

Non-pipeline opportunities

- Solar. Both electric and solar thermal.*
- Electric Service*
- Microgrids in combination with portable fuel trucking (LNG, H2, CNG) for large industrial customers*
- Propane*

Opportunities which reduce GHG emissions and reduce bill impacts if decommissioning is a pipe segment is not possible:

- Hydrogen and RNG*
- Fuel switching from dirtier fuels to natural gas*
- Increased energy efficiency of structures*
- Gas Demand Response Programs*



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

- vi. How should the direct and indirect costs of non-pipeline alternatives be compared to the cost of replacement? For example, are there avoided O&M and pipeline replacement costs for retiring distribution pipelines that could be estimated and incorporated into cost-effectiveness analysis?**
- An economic analysis of costs/benefits should be performed including a review of pipeline deactivation and retirement costs, electric system upgrades, cost of customer appliances and panel upgrades, and O&M costs.*
 - A sample how this could be performed can be seen in PG&E's RAMP testimony*
 - PG&E currently performs this type of non-pipeline alternative comparison with its transmission projects and is developing similar processes for gas distribution projects*

 - Considerations for unknown/unforeseen transitioning costs*



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

vii. If the Commission determines that a distribution pipeline should be decommissioned, what consideration should be given to customers who do not wish to stop their gas service?

- Clarify “obligation to serve” allows operators to provide “Energy” service under the same terms and conditions offered to all customers*
- Consider extensive customer outreach and communication to promote an energy transition*
- Consider off system alternative fuel sources which meet customer’s needs prior to stopping gas service*
- Where feasible consider applying costs to customers who do not wish to stop gas service*



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

viii. What planning and procedures are necessary to ensure that there is sufficient local electric capacity available to reliably serve customers that move off the gas system?

Planning and Procedures:

1. Commission to establish a consistent mileage retirement rate for gas distribution mains and services
 - Consistency supports predictable planning and then predictable and cost-effective outcomes
2. Develop multi year look ahead in projects based on the retirement rate
 - Enables gas, electric, public works, and customer coordination
3. Implement capacity studies for both gas distribution and electric systems (PG&E or non PG&E) to ensure sufficient reliability in both systems during the multi-year transition while also planning EV adoption and other capacity needs
4. The costs of the decommissioning gas distribution system and electric capacity upgrades should have an established cost recovery process.



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

ix. Are there health and safety issues that need to be addressed from decommissioned distribution lines?

- First Responders (i.e., Hospitals, Police, and Fire) may use gas as an emergency backup fuel
- Certain commercial customers may use gas as an emergency backup
- Safety: Residential buildings are of varied age and in different conditions. Safety of the customer owned electrical system should be consider during upgrades to electric.
- Energy reliability and resiliency, i.e. power outages
- Follow existing pipeline deactivation practices related to health and safety



Scoping Memo Question 2e: What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?

x. *What procedural mechanism should be used to proactively decommission distribution pipelines?*

- Conduct pilots to generate data, information, and insights into costs and issues
 - Conduct feasibly pilot projects to gain insights into zonal decommissioning. Pilots should have at least one multi customer project to provide insight into potential concerns
- Develop analytical tools to evaluate costs and benefits of decommissioning gas infrastructure
- Develop a feasibility scoring system
- Consider separate funding for safety related projects and non risk driven proactive decommissioning
- Rank all potential non risk driven proactive decommissioning projects
- Adopt predictable pace and timeline aligned with appropriate cost recovery proceedings

Thank You

Mike Kerans - Director, Gas Distribution Integrity Management



Together, Building
a Better California

Environmental Justice in Proactive Decommissioning

JINA KIM

CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE

R.20-01-007: LONG-TERM NATURAL GAS PLANNING

TRACK 2 WORKSHOP

JANUARY 24, 2022



CALIFORNIA
ENVIRONMENTAL
JUSTICE ALLIANCE

Scoping Memo Question e

What criteria should be used to determine which distribution lines should have the highest priority for proactive decommissioning?



Criteria Should Be Determined by End Goals



Reduced GHG emissions



Reduced rate base



Equity requirements



Affordability

“Procedural Mechanisms” Require Equity

Meaningful
community
outreach and input

Working with
trusted CBOs

Understandable
and accessible
language

Objective and
transparent
process

Meaningful notice

Pilot Programs Are Crucial

Pilots provide vital information

- Survey of reliability needs
- Protections for low-income customers

San Joaquin Valley pilots are a good model for how to substitute service

- Community engagement & education on all-electric options
- Accommodating different kinds of customers

Non-Pipeline Alternatives

Electrification

Energy efficiency

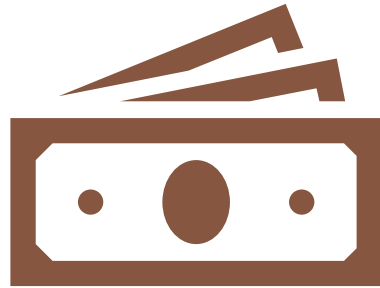
Renewable energy

- Solar
 - Resiliency centers
 - Microgrids

Decommissioning safety

- Gas leaks
- Monitoring

Cost Comparisons Must Be Holistic



Social Costs



Distributive Justice

Thank You

FOLLOW UP → JKIM@CBECAL.ORG



Questions or
comments?

Submit
questions in the
chat or raise
your hand



Long-Term Natural Gas Infrastructure Needs In Meeting Climate Change Goals

CALIFORNIA PUBLIC UTILITIES COMMISSION (R.20-01-007)
GAS INFRASTRUCTURE WORKSHOP 24 JANUARY 2022

INDEPENDENT ENERGY PRODUCERS ASSOCIATION
JAN SMUTNY JONES, CEO

Natural Gas Infrastructure is the Circulatory System for California's Economy

- Natural Gas is an integral to balance a Clean Electricity Portfolio, Providing Generation to meet Net-Peaking, Winter Ramp, Intermittent Variations and Monsoonal impacts. It Supports Intermittent Generation
- Natural Gas Infrastructure delivers an essential commodity to Manufacturing, Commercial, Agriculture and Residential Sectors.
- Repurpose Existing Infrastructure and Preserve Rights of Way for Transporting Hydrogen, Biofuels, and Carbon Capture and Utilization to Meet California Greenhouse Gas Goals.

Natural Gas Provides Capacity

NATURAL GAS GENERATES WHEN NEEDED

- Natural gas supplied Sixty Percent of the Net Peak needs on August 14, 2020 Natural Gas will continue to be critical in meeting Net Peak.
- CAISO Winter Ramp- Natural Gas is essential in meeting 3-Hour 15,000 MW Evening Ramp which is expected to increase to 25,000 MW by 2030.

QUICK FACTS

- Natural Gas the Generated 92 GWh of the 191 GWh of In-State Generation in 2020. 43% of Total. (CEC 2019)
- Natural Gas In-State Generation Capacity is 39 G

The Integrated Resource Plan (IRP) Identifies the need for Natural Gas Generation through 2045. This will Require Existing Natural Gas Infrastructure

CPUC DECISION

- “All of the natural gas resources are retained through 2045, with an additional 0.9 GW needed by 2045 to meet reliability requirements.” (PD in R.20-05-003,12/22/2021, pg. 101)

Existing Natural Gas Infrastructure needs to be Preserved and Re-Purposed

- Natural Gas Generation will continue to be needed through 2045 and maybe beyond.
- Some Natural Gas Plants, including Municipally Owned, are located on low-pressure local natural gas lines and may be critical to local reliability.
- Some Natural Gas Generators and other Industrials are exploring converting to Hydrogen , other Biofuels or Carbon Capture and Utilization which could repurpose the Existing Natural Gas Infrastructure.
- Billions of Dollars have been invested in the Natural Gas Infrastructure which should not be put to waste. A historical example of waste: Southern California once had the largest urban railroad in the world ("Red Cars"). Displaced by freeways it disappeared along with many of the Right-of-Ways . (See: " Who Killed Roger Rabbit") Fifty years later regional transit came back in fashion.

California Meet its Climate Goals with a Strong Economy with a Mixed Energy Portfolio

- California, is the 5th Largest Economy and a Global Leader in Climate Change Reduction. We need to Prove We can Continue to do Both.
- Natural Gas as a Fuel and a Commodity will be Necessary in Transitioning to a Lower Carbon Future.
- The Natural Gas Infrastructure Needs to be Available, Safe and Ready to Meet the Needs of All Californians.
- THANKYOU.



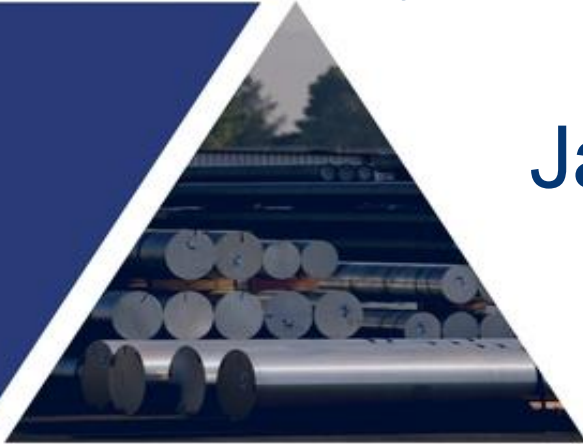
California Public Utility
Commission Long-Term Gas
System Planning Workshop

January 24, 2022



**VISTA
METALS**

Highest caliber. So is the metal.™



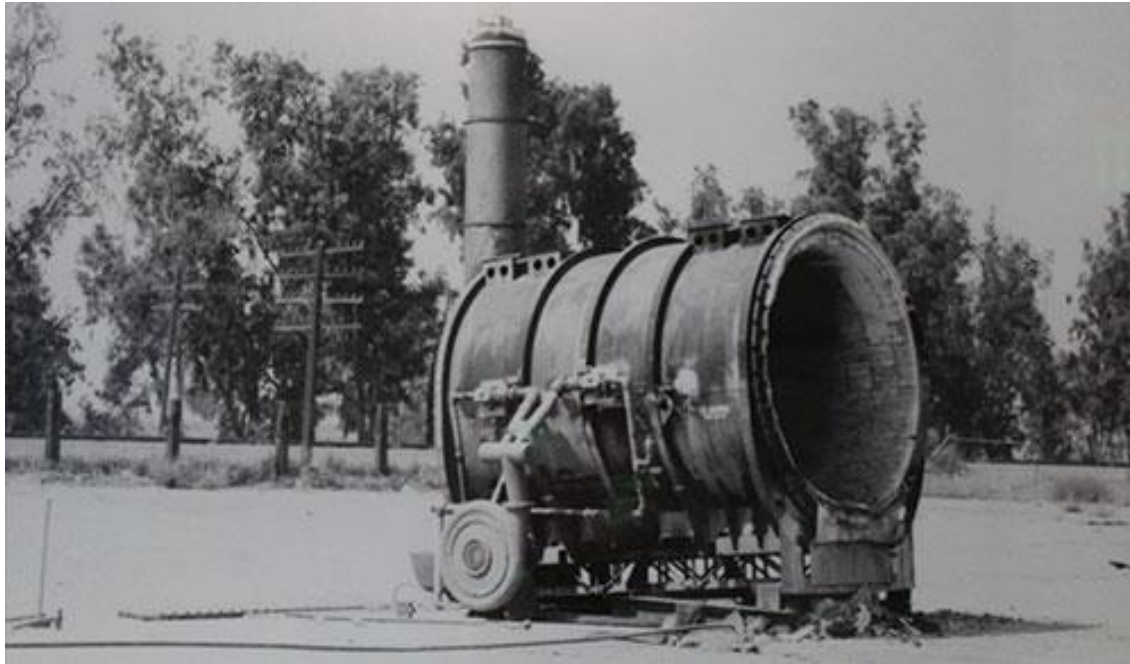
Agenda



- A brief introduction to Vista Metals Corp. (Vista)
 - Abbreviated history.
 - People.
 - Industries served and products.
- Vista's main equipment types.
- Equipment alternatives.
- What does Vista need?
- Questions?

Abbreviated History

- Vista Metals Corp. is incorporated in 1968 as an aluminum recycler.
- Over the decades, Vista has invested more than \$100 million+ into its Fontana facility, installing state of the art equipment and developing best in class processes.



People



“I am grateful for the opportunities that Vista Metals Corp. has provided me to grow not only as a worker, but also as a person. My family and I are proud to be part of the Vista community.”

Fontana, CA

Jonathan Ramirez | Casting Operator
Vista Metals Corp.



Brought to you by  CMTA

imakeca.org

- We employ 268 total employees at our Fontana facility, including 188 that are represented by our partner the United Steelworkers Union, Local 5632.
- 107 employees have been with Vista for 10+ years.
- All the jobs Vista provides are full time and provide excellent pay and benefits.

Products



- We manufacture aluminum alloys in multiple configurations for the aerospace, automotive, injection molding, and other industries.
- Our products are manufactured to the AS9100:2016 quality standard.
- Our products contain more than 50% recycled aluminum, generally recovered out of local markets.
- It is documented within the aluminum industry that recycling a pound of aluminum only uses about 10% of the energy of producing a new pound.

Vista's Main Equipment Types



- Melting furnace. Vista has 8 of these.
- Holds about 100,000 lbs. of metal.
- 16 – 24 mmBtu/hr burner ratings.



- Homogenizing furnace. Vista has 8 of these.
- Holds about 200,000 lbs. of metal.
- 12 – 16 mmBtu/hr burner ratings.

What Does Vista Need?

We need reliable competitively priced natural gas.

- We understand that the long-term goal of the PUC is to decarbonize and electrify.
- Vista's business doesn't exist without reliable natural gas as the primary energy source.
- Electric heating is not a viable substitute to natural gas heating for aluminum melting facilities.
- Using Vista's production and utility data from 2019 - 2021, purchasing the electric energy equivalent of the natural gas we used would lead to about a six-fold increase in our utility costs.
- We couldn't pass this cost increase along to our customers.
- Vista would cease to be a viable business if natural gas was no longer available.
- Natural gas must remain available and the pipeline infrastructure must be maintained if companies like Vista are to remain in California.

What Does Vista Need? (Continued)



Aluminum with high dissolved hydrogen.



Aluminum with low dissolved hydrogen.

We need natural gas that is consistent in composition and energy content.

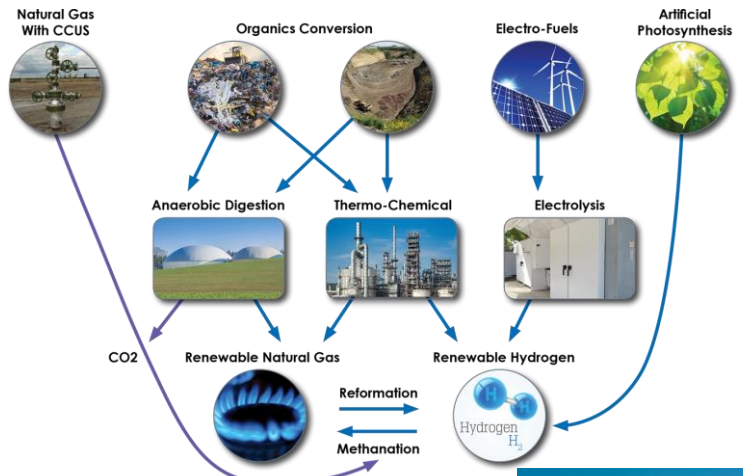
- We understand the goal is to add some amount of hydrogen to the gas supply.
- We are concerned that adding hydrogen to the gas supply may:
 - Impact product quality (molten aluminum absorbs hydrogen).
 - Increase NOx pollution.
 - Decrease productivity.
- We have had multiple discussions with SoCal Gas about using one of our furnaces to test various hydrogen blends.

What Gas Infrastructure to Retain?

Jeffrey Reed, Ph.D.
CPUC Gas OIR Workshop
January 24, 2022

Decarbonized Gas Research Program

Production



- Production economics
- Technology forecasting
- Grid modeling
- Long-duration Storage / Renewables Firming

Transport and Storage



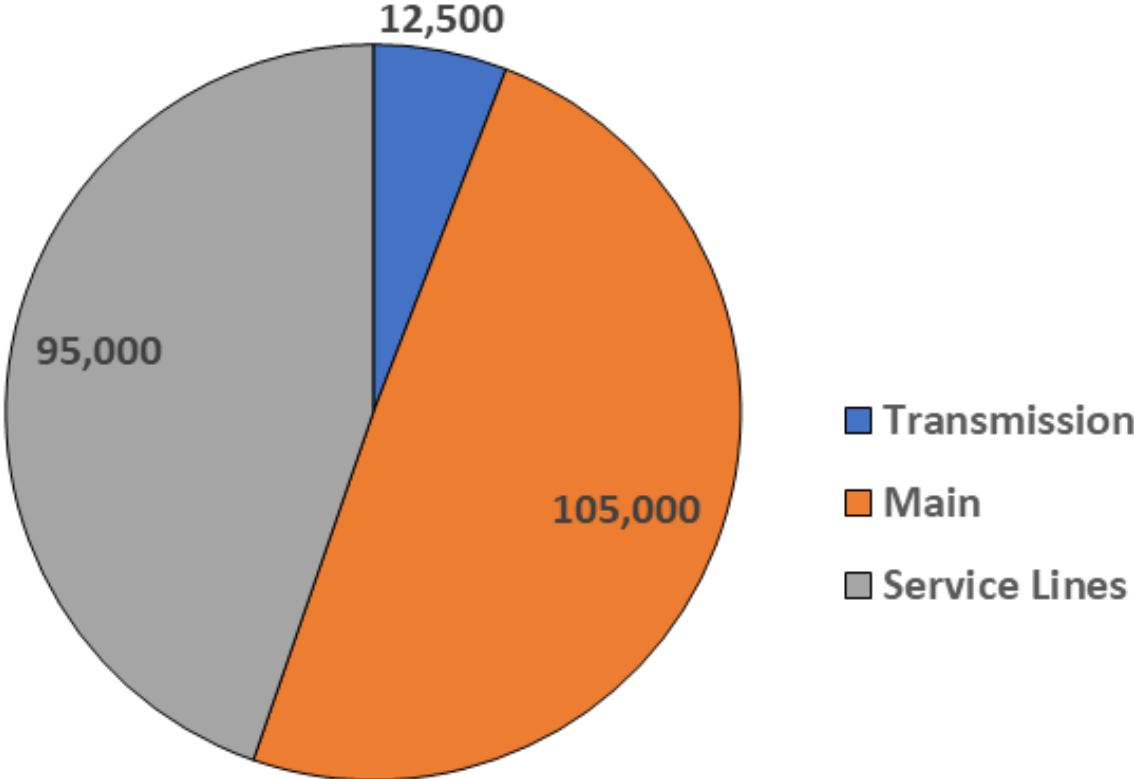
- Hydrogen injection and blending
- System impacts (leakage and embrittlement)
- Gas grid H2 carrying capacity
- Optimal pathways for deep decarbonization of the gas system

End Use

- Transportation decarbonization
- Hydrogen tolerance of burners
- Emissions impacts – device and macro-level

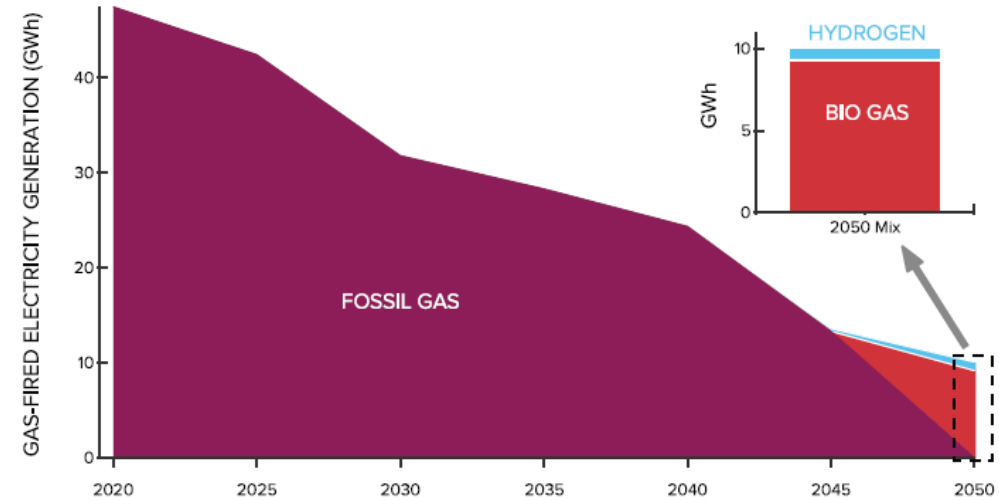


California Gas System Pipe Miles Breakdown



Transmission Backbone + Storage for Firm Renewable Power

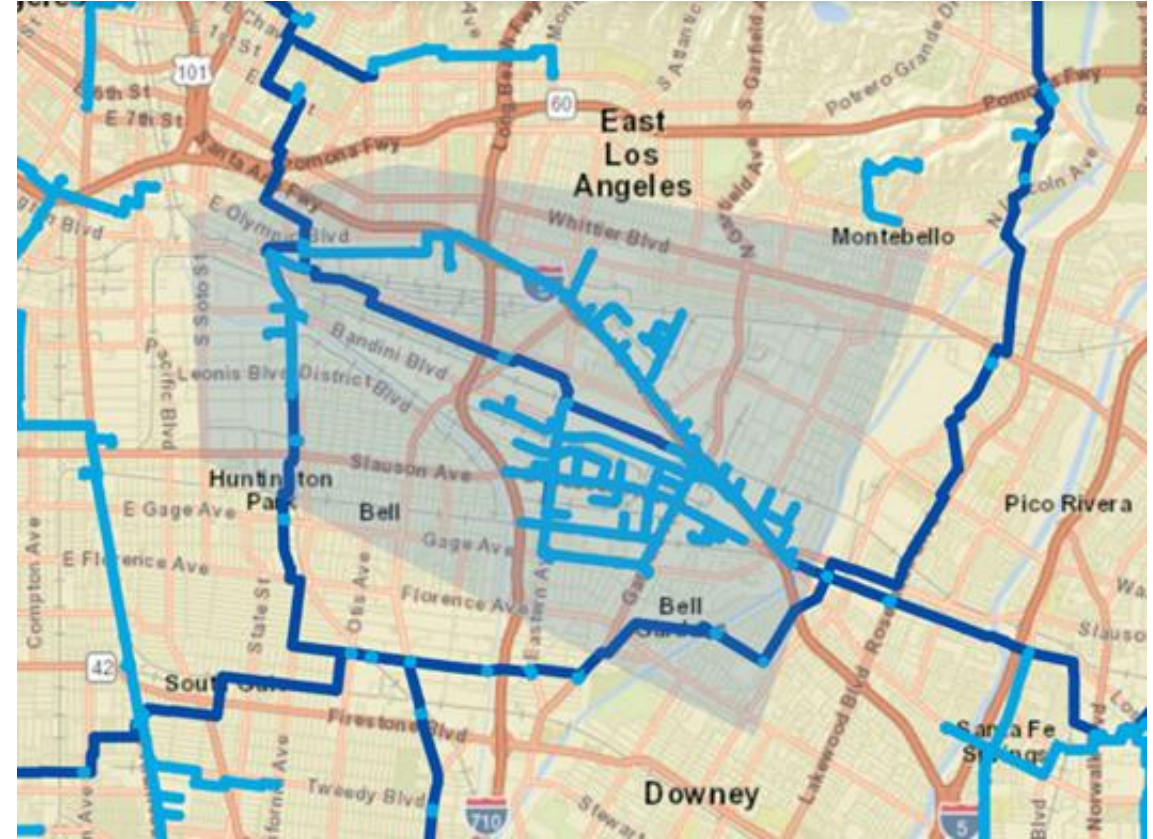
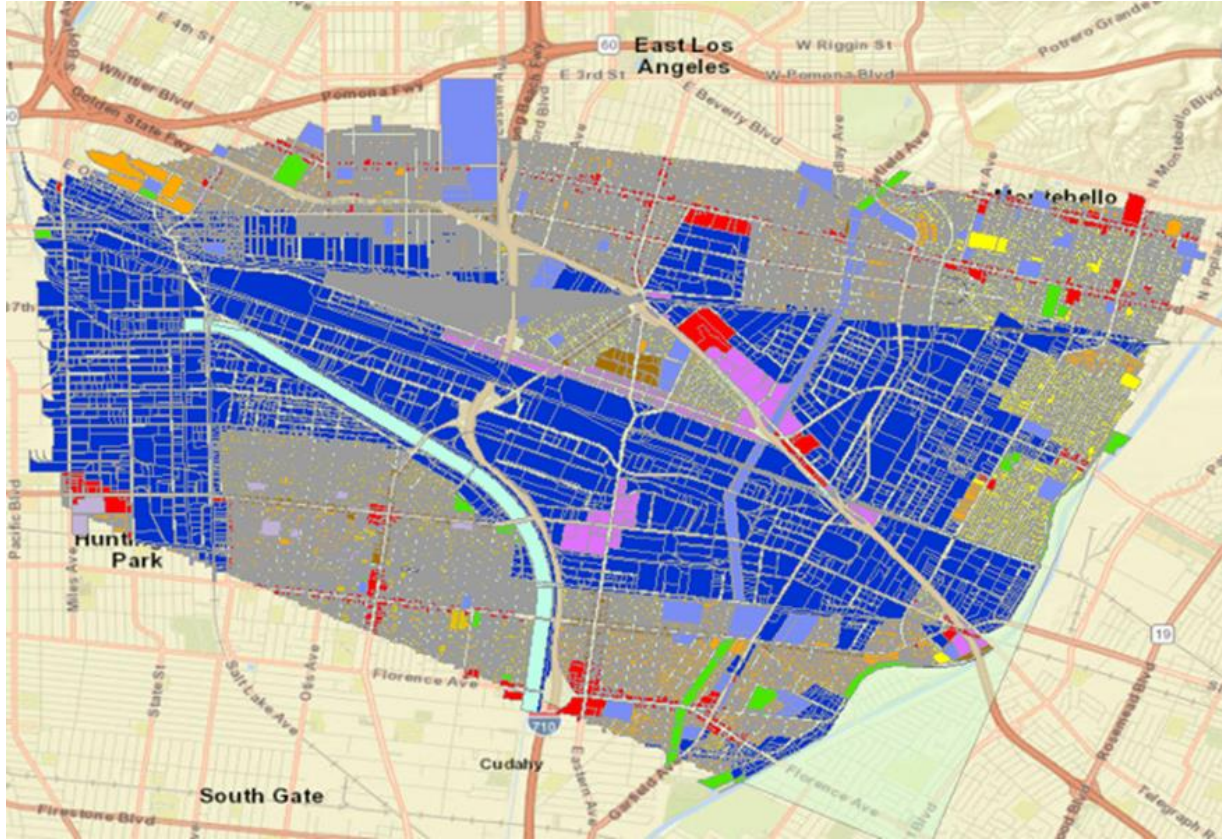
New Jersey Energy Master Plan Least-Cost Scenario
Gas-fired dispatchable electricity generation in the Least Cost scenario



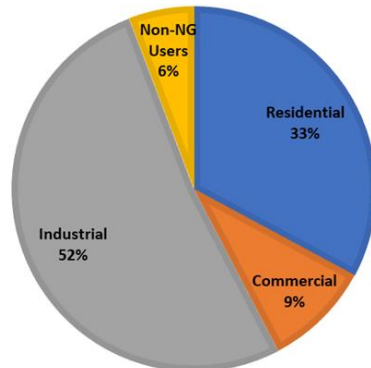
Addressing Air Emissions

- Enhanced emission control
- Include emissions in dispatch order
- Transition to fuel cells

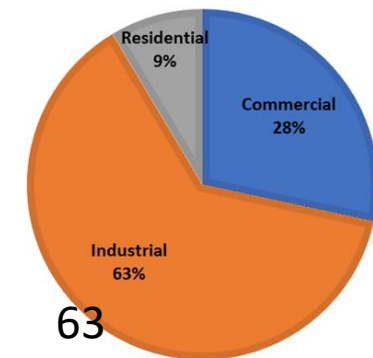
Downtown Los Angeles



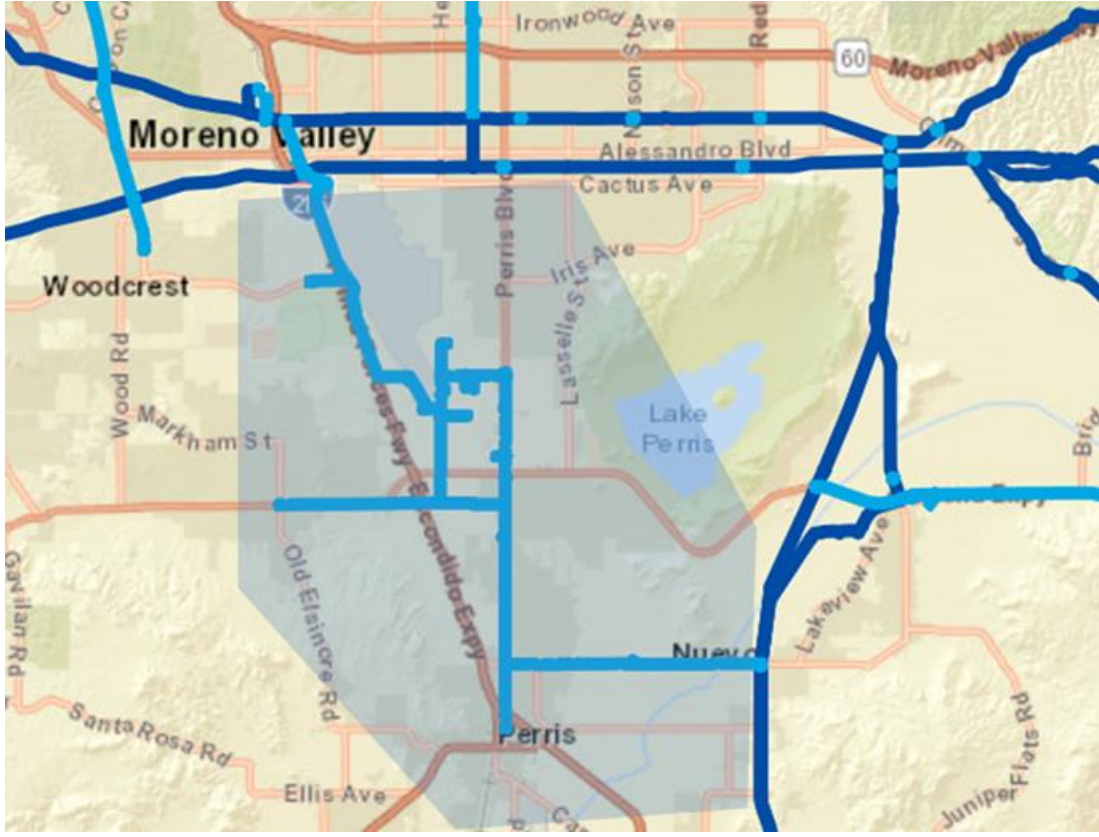
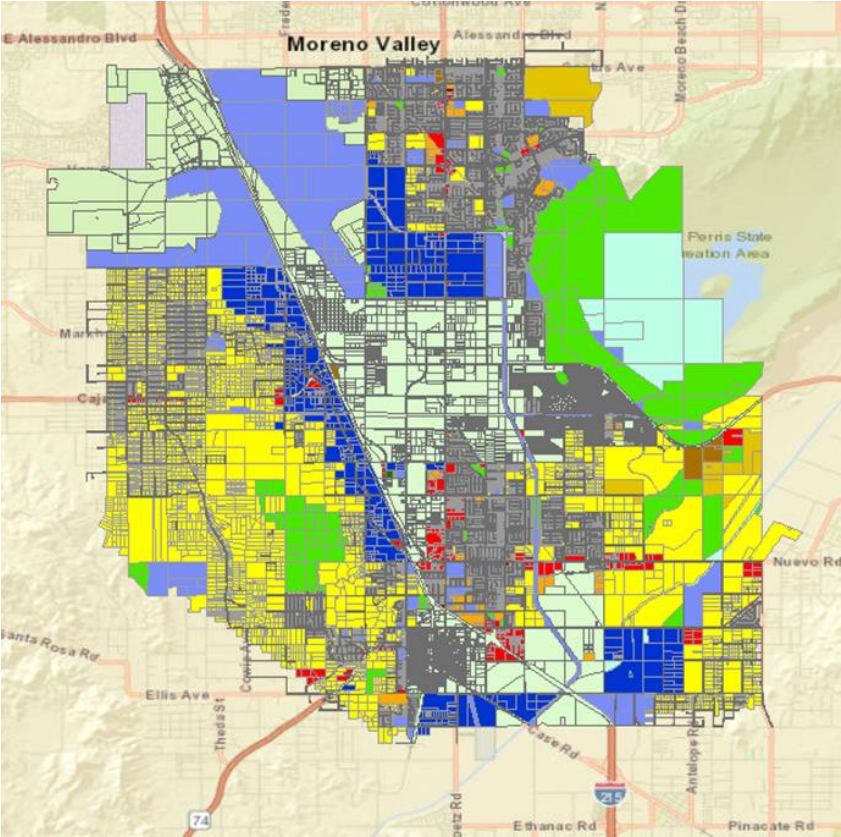
Land Use by Area



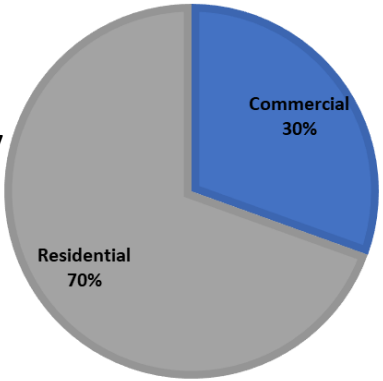
Gas Use by Sector



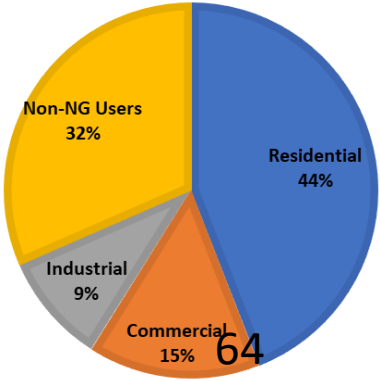
Moreno Valley



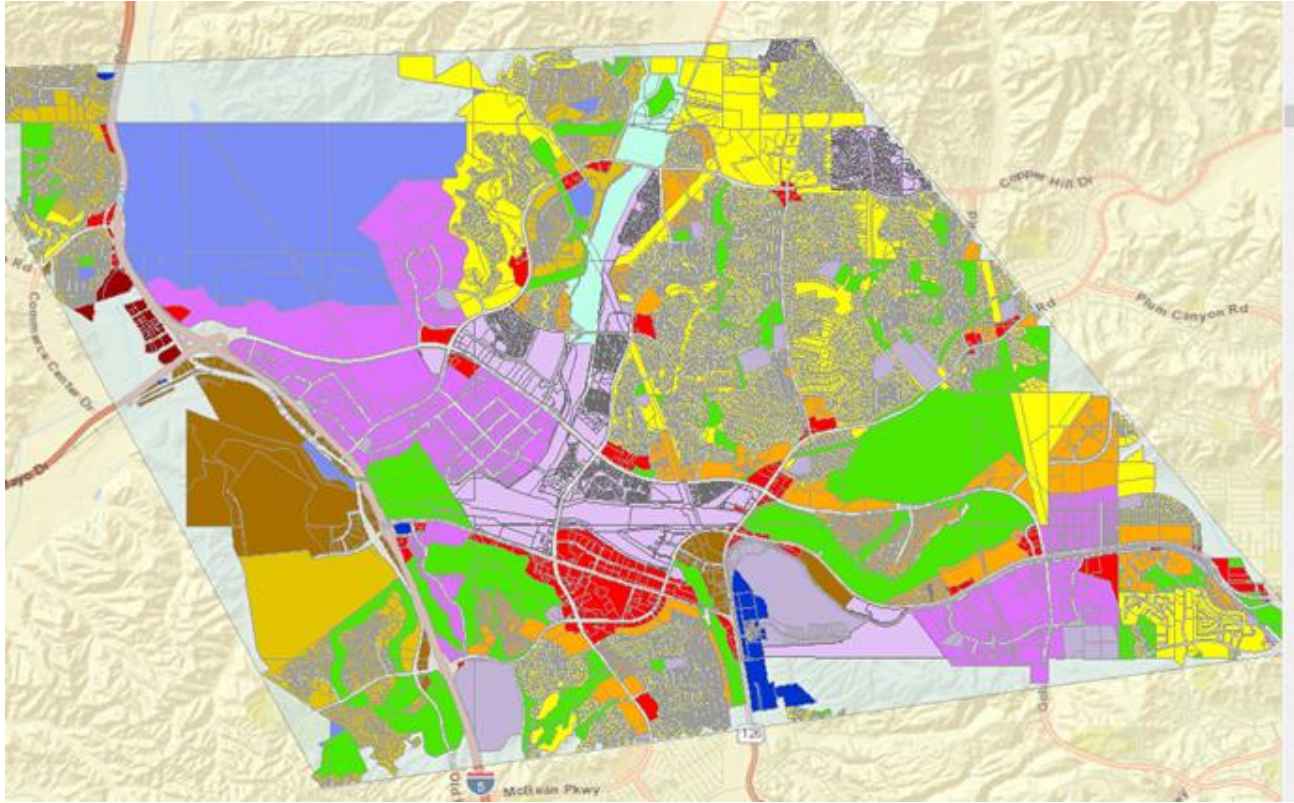
Land Use by Area



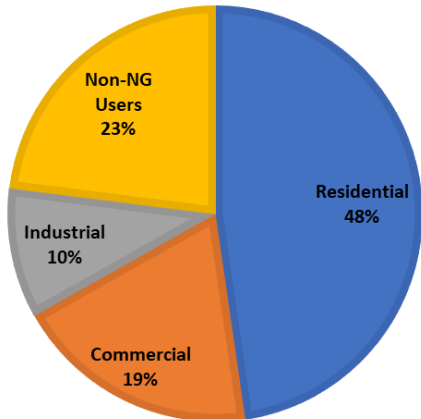
Gas Use by Sector



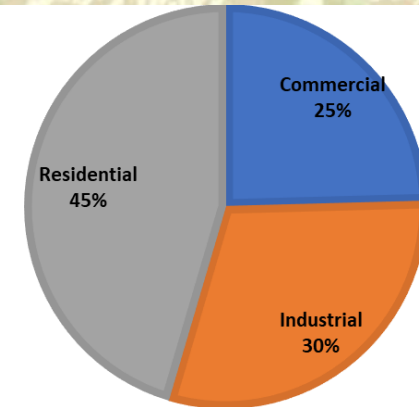
Santa Clarita



Land Use by Area



Gas Use by Sector



Considerations and Criteria

- Equitable access to alternatives to gaseous fuel
- Preference of consumers
- Impacts on reliability and resilience
- Potential to repurpose for hydrogen delivery (or other decarbonization pathways)
- Value of deferring decisions on decommissioning until technology progress is more clear
- Mothball or abandon?

Gas System Planning OIR Workshop – Track 2

January 24, 2022

Chris DiGiovanni – Manager, Gas Strategy, Policy, and Development



Together, Building
a Better California

Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

Key Criteria to Support New Gas Infrastructure

Economic Benefit



Environmental Benefit



The Commission should consider the Utilities' legal requirements under the obligation to serve. Additionally, the Commission should consider the continuation of allowances, discounts, and refunds for the needed gas infrastructure for projects that provide financial and/or environmental benefits.

Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

What Customers are Included?

Examples include, but are not limited to the following:

- *Electric Generation*
- *Cement / Concrete / Chemical Plants*
- *Glass Factories*
- *Refineries*
- *Industries with heavy duty industrial equipment*
- *Shipping*

These industries...

- *Support construction and infrastructure growth*
- *Create and distribute industrial medical and specialty gases*
- *Key to economic development*
- *Preserve and grow job opportunities*



Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

Why is it Difficult to Electrify?



- *Operate at high production rates*
- *Cannot sustain power loss*
- *Many rely on the chemical reaction that need combustion products [Cement for example] and cannot use electricity as energy source*
- *Lack of available electric technologies*



- *Likelihood that businesses with small margins could shut down or relocate operations to another more economical state where requirements are not as stringent – resulting in job losses.*

Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

How Does This Affect Gas Infrastructure Planning?

- *Utilities must consider obligation to serve and maintain reasonable transportation rates for customers*
- *Allows for easier transition from dirtier fuels to natural gas*
- *Utilizing existing infrastructure provides an opportunity to increase RNG and hydrogen usage*





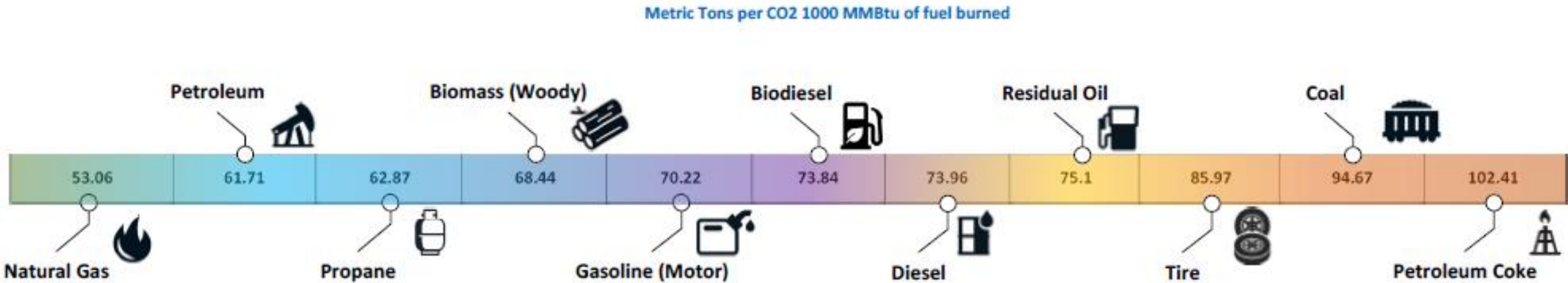
Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

What Should be Considered in the Long-Term Planning Process?

- *Consider the Utilities' obligation to serve*
- *Maintain reasonable transportation rates for customers*
- *Maintain infrastructure that serves current customers to allow for fuel switching from dirtier burning fuels*
- *Allow for new infrastructure where economics benefit gas rates for customers and/or provide environmental benefits by considering the continuation of allowances, discounts, and refunds for the needed gas infrastructure*
- *Propose incentive opportunities for fuels such as hydrogen and RNG*
- *Provide incentives for fuel switching*
- *Offering increased allowances and discounts for facility construction that result in lower GHG emissions*

Scoping Memo Question 2.1.j: How should the Commission consider the need for gas infrastructure that may be needed to serve new industrial gas customers in difficult to electrify sectors as part of the long-term gas system planning process?

Long-Term Planning Process – Carbon Spectrum



Notes: * Electricity Generation **In State** that includes emission sources within the borders of California. It does not include fuel combusted by out-of-state power plants that supply electricity to California, international and interstate transportation, and federal military facilities.

1). Emission Factors of Fuel Combustion for Stationary Applications (MT per MBtu of fuel burned). Based on Federal Register EPA; 40 CFR Part 98; e-CFR, June 13, 2017. Table C-1, Table C-2, Table AA-1.

2). Sources of emissions from stationary combustion include boilers, heaters, furnaces, kilns, ovens, flares, thermal oxidizers, dryers, and any other equipment or machinery that combusts carbon bearing fuels or waste stream materials.

Thank You

Chris DiGiovanni – Manager, Gas Strategy, Policy, and Development



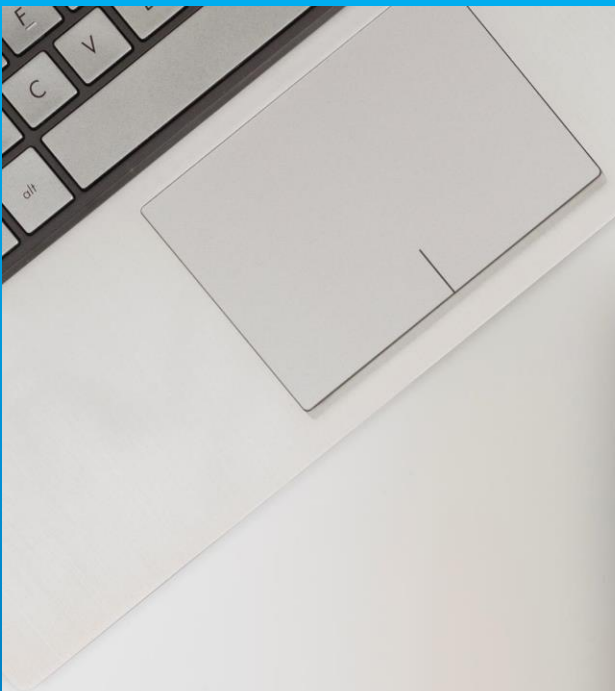
Together, Building
a Better California



Questions or
comments?

Submit
questions in the
chat or raise
your hand

RELAX
REFRESH
RECHARGE





CPUC Presentation



January 2022

Toby McKenna, President & CEO

Jason Dubchak, VP, General Counsel & Corporate Secretary

DISCLAIMER AND FORWARD-LOOKING STATEMENTS

This presentation is intended solely for investors that are qualified institutional buyers solely for the purposes of familiarizing such investors with Rockpoint Gas Storage and determining whether such investors might have an interest in a securities offering contemplated by Rockpoint Gas Storage Canada Ltd. Any such offering of securities will only be made by means of an offering memorandum. This presentation shall not constitute an offer to sell or the solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

The information contained in this presentation is for informational purposes only, may not be complete and may be changed. By acceptance hereof, you agree that the information contained herein may not be used, reproduced or distributed to others, in whole or in part, without our prior written consent. Except as otherwise indicated or the context otherwise requires, as used in this offering memorandum, the “Company,” “we,” “our,” “us” or like terms mean Rockpoint Gas Storage Partners LP and its subsidiaries, BIF II CalGas (Delaware) LLC and its subsidiaries and BIF II Tres Palacios Aggregator (Delaware) LLC, its subsidiaries and its proportionate ownership of Tres Palacios Holdings LLC (the “Combination”). The contents hereof should not be construed as investment, legal, tax or other advice and you should consult your own advisers as to legal, business, tax and other related matters. There is no obligation to update the information, and no representation or warranty is given in respect of the accuracy or completeness of such information.

Certain statements and information in this presentation may constitute “forward-looking statements.” Forward-Looking statements are based on our management’s current expectations, contain projections of results of operations or of financial condition or forecasts of future events. Words such as “may,” “assume,” “forecast,” “position,” “predict,” “strategy,” “expect,” “intend,” “plan,” “estimate,” “anticipate,” “believe,” “project,” “budget,” “potential” or “continue,” and similar expressions are used to identify forward-looking statements. All statements that address operating performance, events or developments that we expect or anticipate will occur in the future, including statements relating to general views about future operating results, are forward-looking statements. Management believes that these forward-looking statements are reasonable as and when made. They can be affected by assumptions used, or by known or unknown risks or uncertainties, some of which are beyond our control. Consequently, no forward-looking statements can be guaranteed. When considering these forward-looking statements, you should keep in mind the risk factors and other cautionary statements in the offering memorandum. Actual results may vary materially. You are cautioned not to place undue reliance on any forward-looking statements. You should also understand that it is not possible to predict or identify all such factors and should not any such list to be a complete statement of all potential risks and uncertainties.

If one or more of any such risks or uncertainties materialize, or if underlying assumptions prove incorrect, our actual results may differ materially from those anticipated, estimated, projected or expected. Each forward-looking statement speaks only as of the date of the particular statement and we undertake no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

Certain information in this presentation gives effect to the Combination as if it had occurred on January 1, 2022. Such information is illustrative and not intended to represent what our results of operations would have been had the Combination occurred on January 1, 2022 or to project our results of operations for any future period. Such information may not be comparable to, or indicative of, future performance.

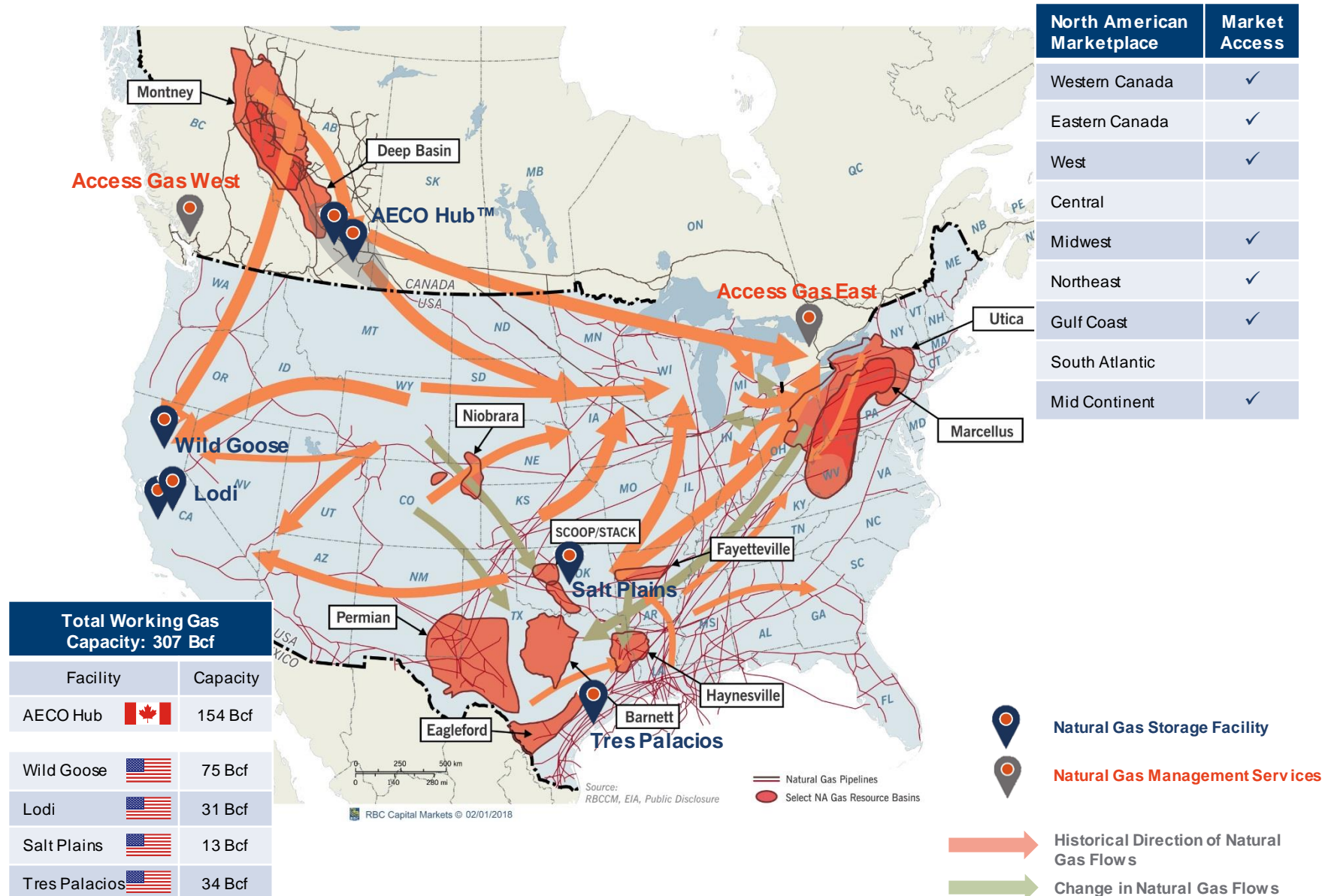
This presentation includes non-GAAP financial measures which are commonly used in our industry, have certain limitations and should not be construed as alternatives to financial measures determined in accordance with generally accepted accounting principles in the United States, or U.S. GAAP. The non-GAAP measures as defined by us may not be comparable to similar non-GAAP measures presented by other companies. Our presentation of such measures, which may include adjustments to exclude unusual or non-recurring items, should not be construed as an inference that our future results will be unaffected by other unusual or non-recurring items. See the appendix to this presentation for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP measure.

All figures in US\$ unless otherwise noted

- **Rockpoint Gas Storage Partners LP ("Rockpoint") is the largest independent owner and operator of natural gas storage facilities in North America**
 - Over 300 Bcf of working gas capacity located in key North American natural gas producing and consuming regions and connected at strategic points on the gas transmission network, providing access to multiple end-use markets
 - Our assets include:
 - AECO natural gas storage hub (154 Bcf) in Alberta, Canada (comprised of Suffield and Countess facilities)
 - Warwick natural gas storage facility (21 Bcf) in Alberta, Canada
 - Wild Goose natural storage facility (75 Bcf) and Lodi storage facility (31 Bcf) – comprised of Lodi and Kirby Hills facilities in northern California
 - Salt Plains storage facility (13 Bcf) in Oklahoma
 - 49.99% membership interest in Tres Palacios facility (34 Bcf) in Texas

- **Natural gas management services:**
 - Rockpoint owns and operates Access Gas Services which provides natural gas supply and related services to customers throughout Canada and provides agency services to natural gas end-users in Eastern and Western Canada through Enerstream Agency Services

- **Natural gas storage facilities have several applications:**
 - Capitalizes on the seasonal, monthly and daily imbalance between supply and demand for natural gas
 - Provides customers with the ability to store natural gas for use or resale in a higher value period
 - Storage required for excess summer supply and also required to meet peak winter demand
 - Allows customers to match largely constant supply with variable demand
 - Reliable and safe physical backstop during energy grid operational issues



- **Scoping Memo Question 2.1.g: What should be the role of existing natural gas storage facilities as a component of gas utilities' infrastructure portfolio?**
 - **Core Natural Gas Procurement**
 - **Renewable Natural Gas Projects**
 - **California**
 - **Alberta**
 - **Responsibly Sourced Gas**
 - **Hydrogen Blending Projects**
 - **California**
 - **Alberta**
 - **Development of new marketplaces to enhance price transparency, liquidity and capital backstopping for renewables and carbon credit development**



ROCKPOINT

G A S S T O R A G E



Long Term Gas Planning Rulemaking: Gas OIR Track 2a Workshop

Marci Palmstrom – Director, Trading & Market Operations

January 24, 2022

g. What should be the role of existing natural gas storage facilities as a component of gas utilities' infrastructure portfolio?

- Gas storage plays an important role in maintaining reliability, and managing operational flexibility
- As the State moves toward meeting its clean energy goals, SCE expects reduced gas usage and less reliance on gas-fired generation, thus reducing reliance on gas storage for balancing
 - Significant generation (energy storage and renewables) is expected to come on-line by 2026 in light of the CPUC's Mid-term Reliability Procurement requirements
- Additional studies are needed to determine whether a sizeable reduction in gas storage capacity would impact electric system reliability in winter or summer months in the near term (e.g., thru 2026) as well as in the long term (e.g., 2027-2045)

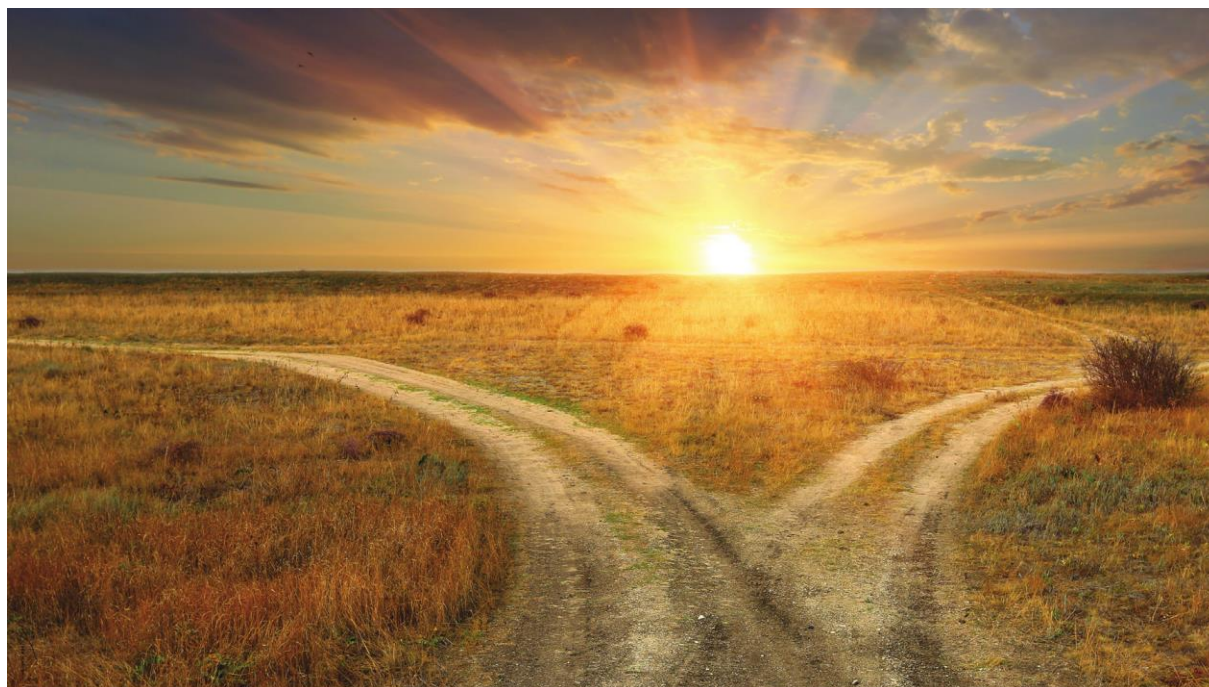
Information drawn from 2018 CCST report
https://ccst.us/?s=underground+gas+storage&post_type=ccst_reports:



CCST
CALIFORNIA COUNCIL ON
SCIENCE & TECHNOLOGY

Long-Term Viability of Underground Natural Gas Storage in California

An Independent Review of Scientific and Technical Information

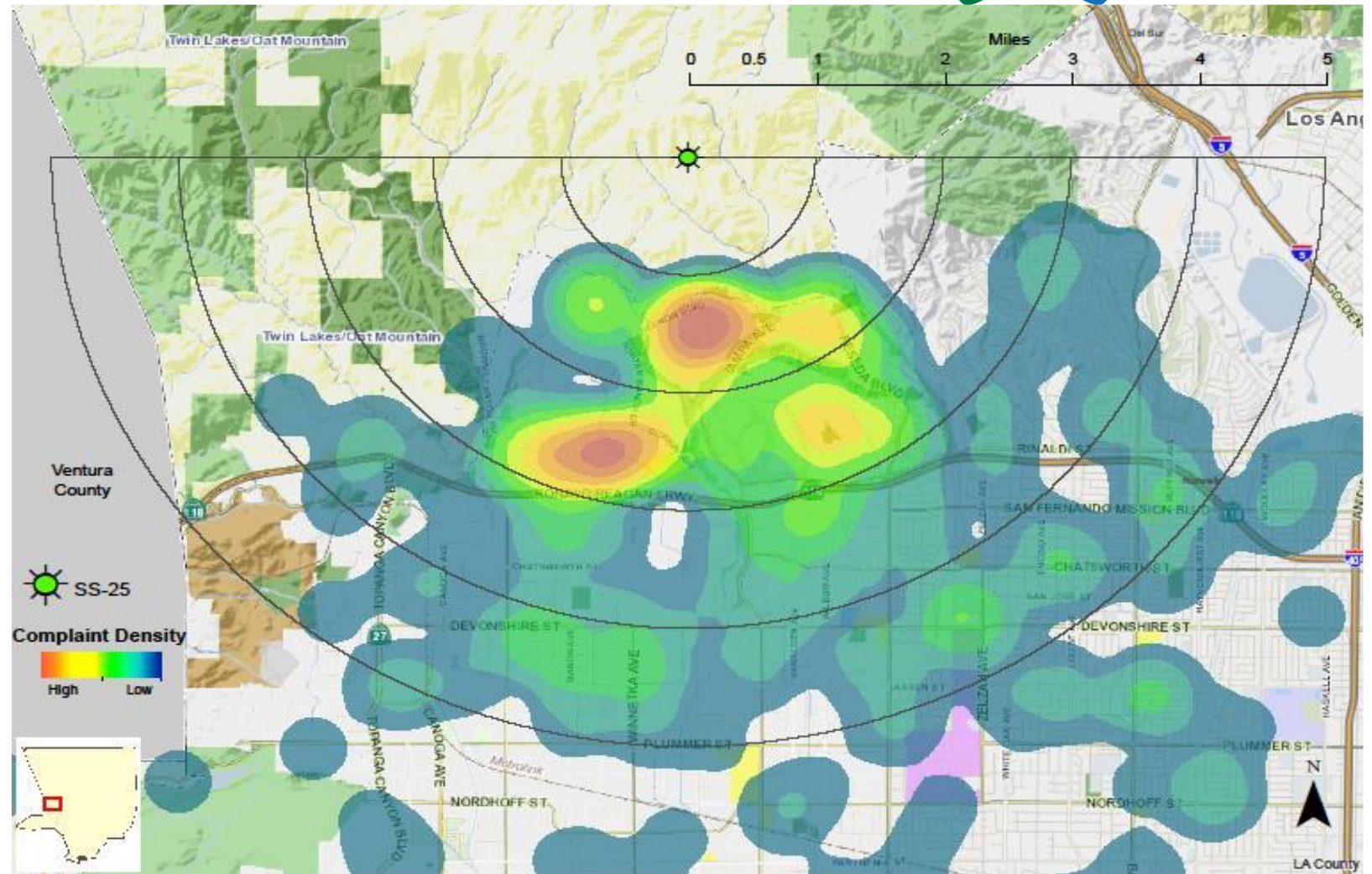


Jane C.S. Long
Study co-chair

January 24, 2022
PUC workshop

2015 Aliso Canyon was largest leak in US History:

SB 826 asks CCST for study



(LACDPH, 2016c)

Density of complaints

Study Purpose and Key Questions



Conduct an independent scientific assessment of the past, present, and potential future uses of underground natural gas storage in California

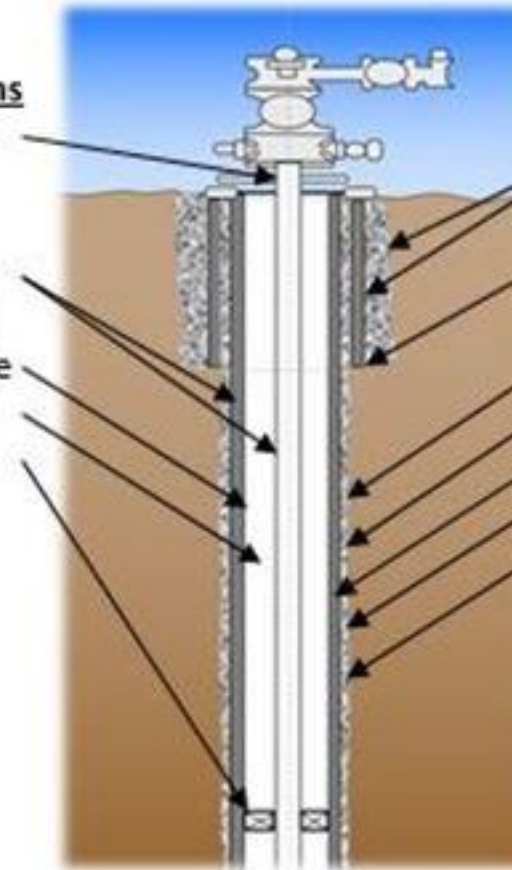
- **Key Question 1:** What risks do California's underground gas storage facilities pose to health, safety, environment and infrastructure?
- **Key Question 2:** Does California need underground gas storage to provide for energy reliability in the near term (through 2020)?
- **Key Question 3:** How will implementation of California's climate policies change the need for underground gas storage in the future?

New DOGGR regulations require tubing and packers which greatly reduce likelihood of well loss of containment.



Internal Integrity Considerations

- Wellhead Integrity (e.g. hanger leak, proper configuration)
- Casing and Tubing Integrity (e.g. casing and collar leaks)
- Casing corrosion and damage
- Annular Fluids
- Packer and Plug Integrity



External Integrity Considerations

- Cement Bond (casing and formation)
- Casing Seat/Formation Integrity
- Annular Fluids
- Cement Slurry
- Casing corrosion and damage
- External Packers
- External Fluid/Gas Migration
 - Via Micro annulus
 - Via Cement Channels
 - Through Cement Pores
 - Fracture Systems
 - Failed External Casing Packer
- Reservoir Integrity

Source: ALL Consulting, 2017

Not all sites are equal

- They have different risk profiles
- They have different utility

	Facility ¹	Pacific Gas and Electric			Southern California Gas			
		Los Medanos Gas	McDonald Island Gas	Pleasant Creek Gas	Aliso Canyon	Honor Rancho	La Goleta Gas	Playa del Rey
UGS facility characteristics	2015 Capacity (Bcf)	17.9	82.0	2.3	86.2	27.0	19.7	2.4
	Average depth (range) of storage reservoir(s) (ft)	4,000	5,220	2,800	9,000	10,000	3,950	6,200
	Average annual gas transfer per well per from 2006 to 2015 (million scf)	255	75	22	197	244	232	13
	Number of open ² wells connected to storage reservoir in 2015	21	88	7	115	41	18	54
	Median age of open ² wells as of 2015 (yrs)	36	41	41	42	39	63	79
Failure modes, likelihoods, and hazards	Maximum deep-seated landslide susceptibility	VI	0	VII	X	X	X	X
	Last fault rupture through or (*) within 500 m of flow line(s) (yrs ago)	<130,000*	None	None	<15,000*	<15,000*	<130,000*	None
	Hazard of Quaternary fault shearing of well(s) present	Maybe	No	No	Yes	Unlikely	Unlikely	No
	Max. 2% probability of exceeding 0.2-sec spectral acceleration in 50 years (g)	2.15	1.25	1.85	2.75	2.45	2.65	1.65
	Earthquake-induced landslide hazard zone	?	No	No	Yes	Yes	?	Yes
	Tsunami hazard	No	No	No	No	No	Yes	?
	Flooding hazard	No	Yes	No	No	No	Yes	No
	Fire hazard severity zones - predominant (maximum, if different)	Moderate	Not zoned (moderate)	Moderate	Very high	Very high	Not zoned	Very high
	Number of reported distinct LOC incidents in Evans (2008) and in Folga et al. (2016)	1	2	1	3	1	0	3
Health and safety	Proximity of handling plant (center) to well field (km)	0.3	0.0	0.4	0.2	0.0	0.5	0.0
	Population in proximity to UGS	223,069	6,473	8,821	325,330	180,359	101,371	691,757
	Median (max) formaldehyde emissions from 1996 - 2015, predominantly from compressors (lbs/yr)	4,968 (7,204)	11,163 (11,163)	not reported	15,001 (20,640)	18,675 (27,296)	2,197 (3,456)	3,038 (5,772)
GHG emissions	Average observed methane emission rate (kg CH ₄ /hr)	11	150	16	200 ³	740	36	0
	Extrapolated annual emissions/average annual gas injection (%)	0.1	0.2	0.4	0.2 ³	1.2	0.1	0.0

Take Away Messages: Key Question 1



Manage and Mitigate Risk

- DOGGR regulations significantly decrease risks
- Review and improve regulations
- Monitor for leaks and prepare for rapid modeling of gas dispersion.

Evaluate Each Facility with respect to risk and benefit.



California gas import capacity

Import takeaway capacity:

PG&E: 2.9 bcfd

SoCalGas: 3.4 bcfd

CA production : 1.2 bcfd

TOTAL CAPACITY:

7.5 bcfd

Peak demand: 11.8 bcfd

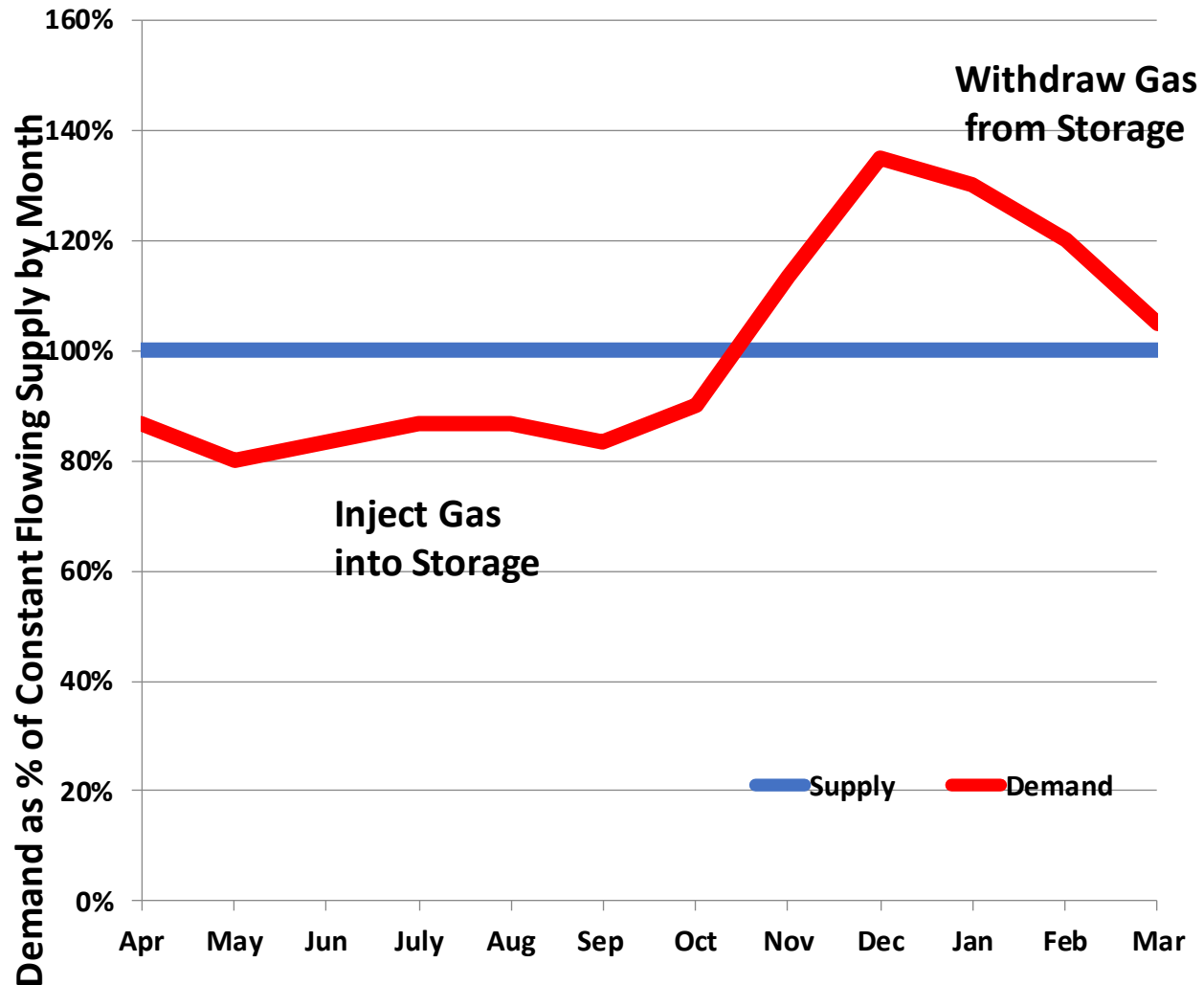
1. El Paso Natural Gas



If storage can meet winter demand,
then it can do all the other functions:

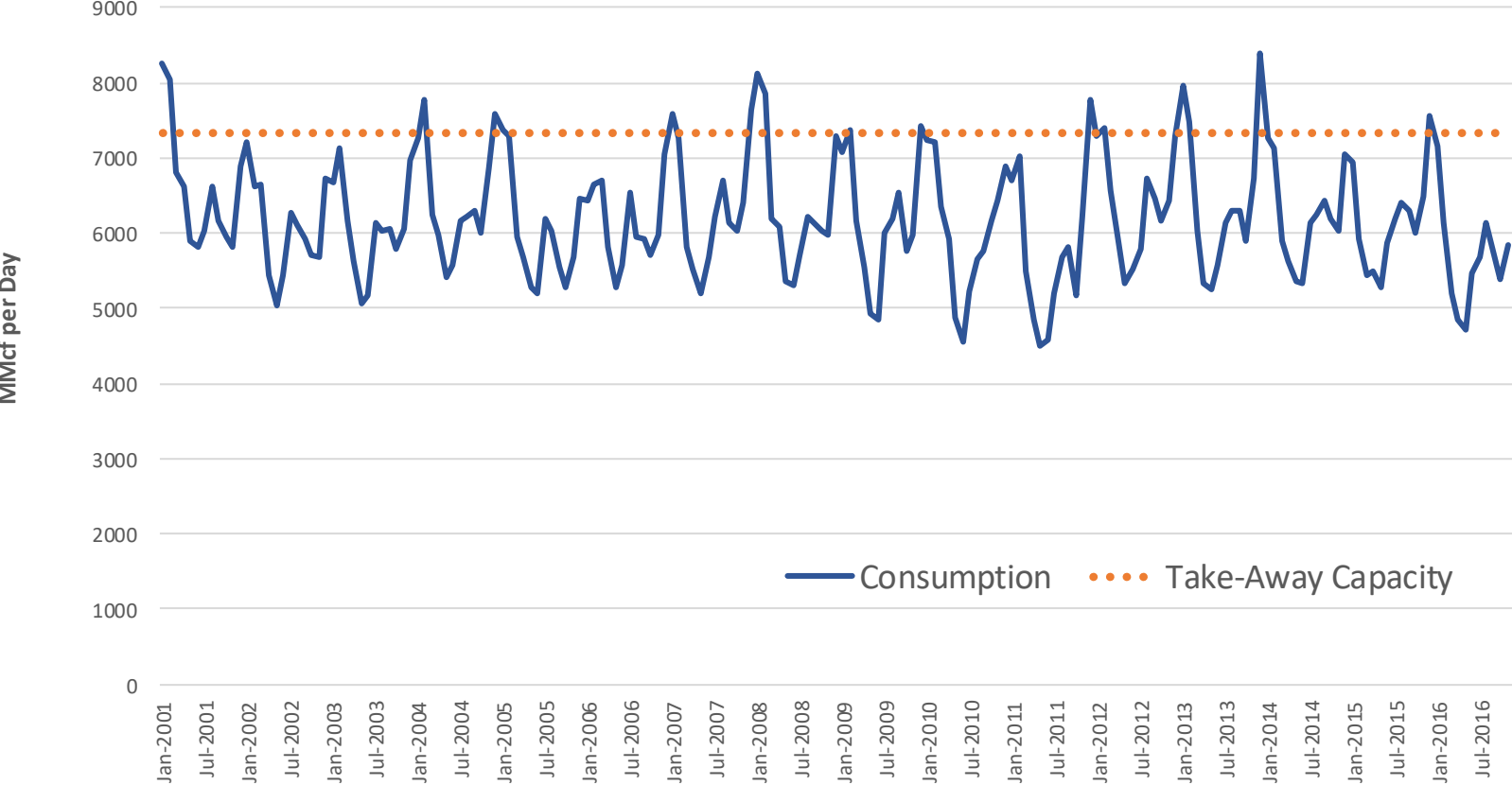
- **Winter monthly and peak demand**
- Intraday balancing including backing up renewable energy
- Compensating for difference between variable demand and steady production,
- Creating an in-state stockpile for emergencies, and
- Allowing arbitrage and market liquidity.

Gas storage functions



- 1. Monthly Winter Demand**
Provides supply when monthly winter needs exceed the available pipeline supply capacity.
- 2. Flat Production**
Provides supply when demand exceed supply production rate.

Gas storage functions



3. Winter Peak Day Demand

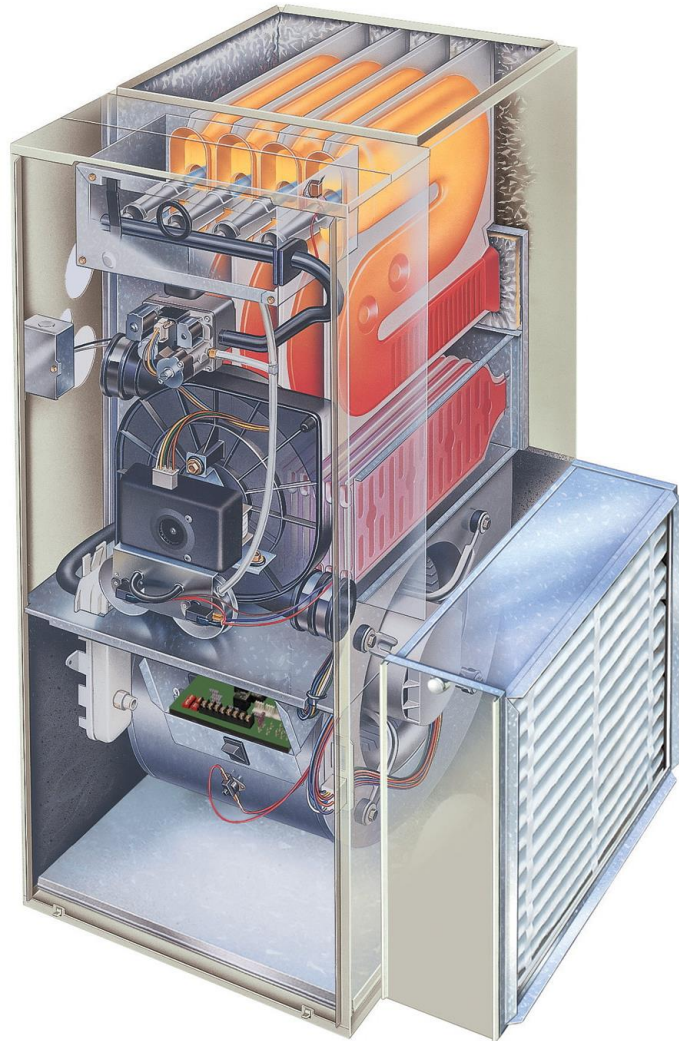
Winter peak demand is 11.8 Bcfd

Import capacity is 7.5 Bcfd

Shortfall is 4.3 Bcfd

Without storage, California would be unable to consistently meet winter demand for gas.

Winter peak driven by heat, not electricity



No method of conserving or supplying electricity can replace the need for gas to meet the winter peak in the 2020 time frame including

- electricity storage,
 - new transmission,
 - energy efficiency measures, and
 - demand response.
- **The winter peak is caused by the demand for heat and heat will continue to be provided by gas, not electricity, in that time frame.**
 - Gas storage is likely to remain a requirement for reliably meeting winter peak demand.

High efficiency gas furnace:

<https://hvacdealers.com/blog/high-efficiency-gas-furnaces/>

Additional pipelines could replace UGS



- **Would cost approximately \$15B**
- Difficult to do by 2020 (maybe by 2025?)
- Shifts the risk of supply not meeting demand to upstream, out-of-state
- Is a further commitment to gas
- Presents its own set of risks

Replace UGS with LNG peak shaving units

To meet the 11.8 Bcfd extreme winter peak day demand forecast for 2020 would be extremely difficult to permit.

Would require about \$10B.





Containerized LNG

- 2,000 containers required to support a 50 MW power plant for four hours,
- Takes a day to recharge
- Container transportation would incur potential safety issues, increased emissions
- The number of containerized LNG units required to generate each MWh suggest containerized LNG does not appear viable at the scale required to replace California's 4.3 Bcfd winter peak
- May have application in meeting system peaks for a few hours or supporting power plant demands for a few hours.



*Figure 32. GE's CNG Technology Solution
Source: Photo courtesy of BHGE*

Operational and Market Mechanisms



- Regulatory and operational changes can help to reduce reliance on underground gas storage, but will not eliminate the need for these services.
 - Tighter Balancing Rules – small gains; already made
 - Core Customers Balancing to Load Instead of Forecast – small gains
 - Greater Use of Line Pack – already used
 - Closer Gas-Electric Coordination – already done
 - Shifting to Out-of-Area Generation on Gas-Challenged Days – still need winter heat
 - Day-Ahead Limits on Gas Burn – doing this now
 - Shaped Nominations and Flexible Services – could reduce peak
 - Weekend Natural Gas Market – requires agreement

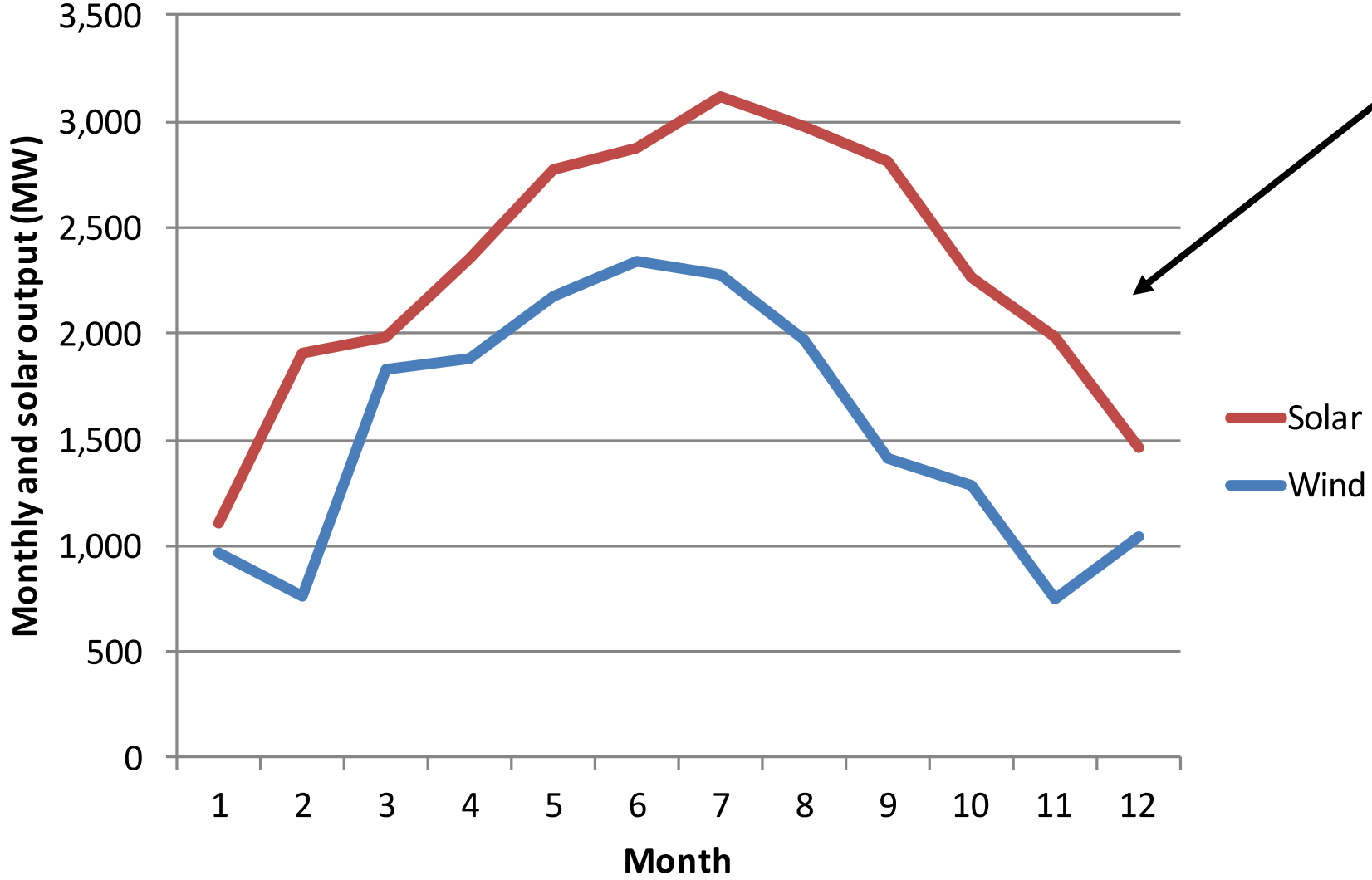
There is no “silver bullet” to replace underground gas storage



- California needs natural gas and natural gas storage to meet seasonal winter demand and winter peak daily demand for heat.
- Pipelines do not have the capacity to meet these demands.
- Replacing UGS would be very expensive and nearly impossible to do in the near term.
- We did not answer the question: How much UGS does CA need?

OK, what about the future?

California monthly wind and solar output (2016)



Demand for heat peaks in winter, when solar and wind outputs are minimal.

Electrified heat could be a key strategy in lowering emissions, but would further exacerbate supply-demand mismatch.



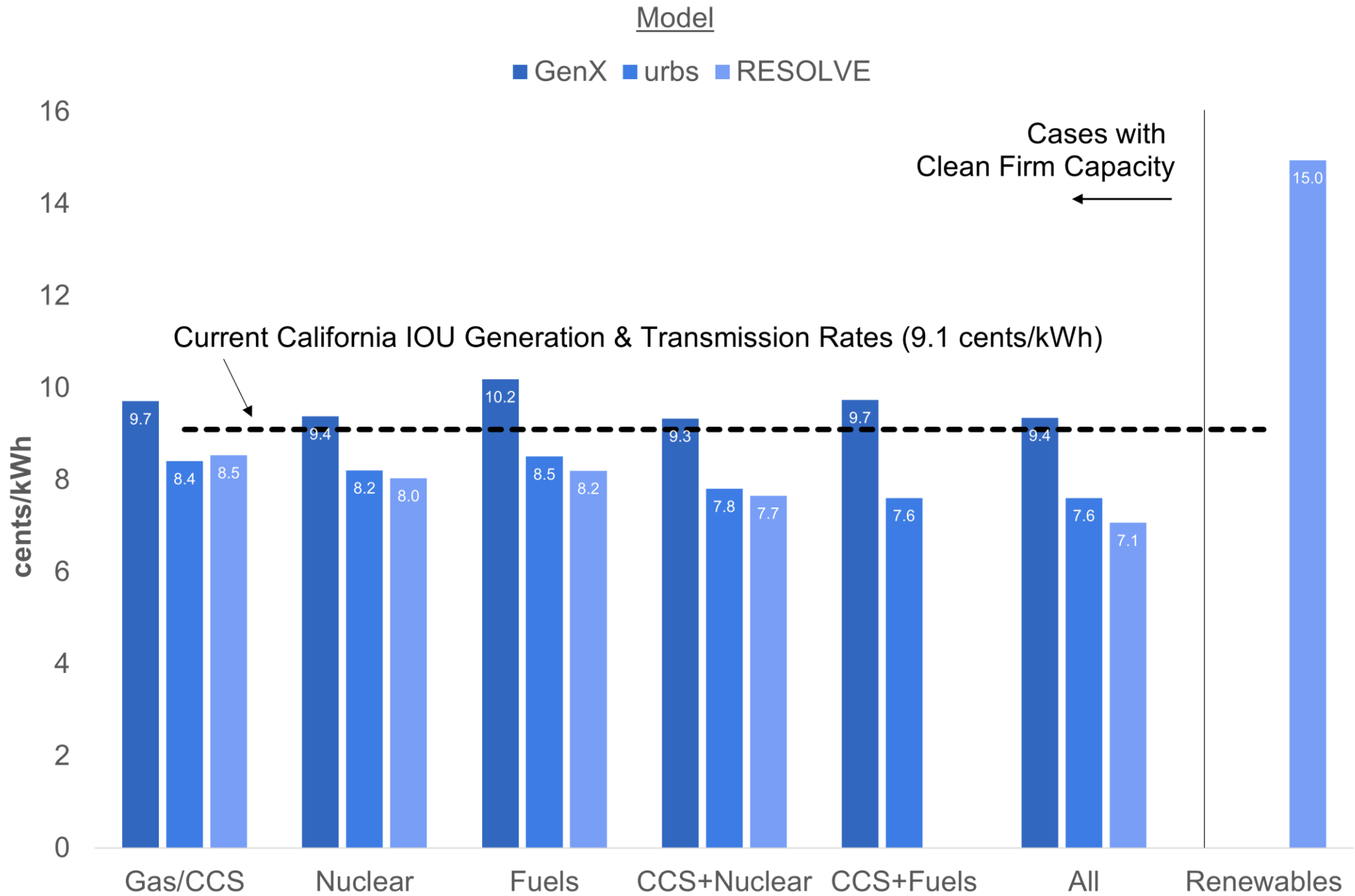
Required backup from gas is equal to renewable energy capacity

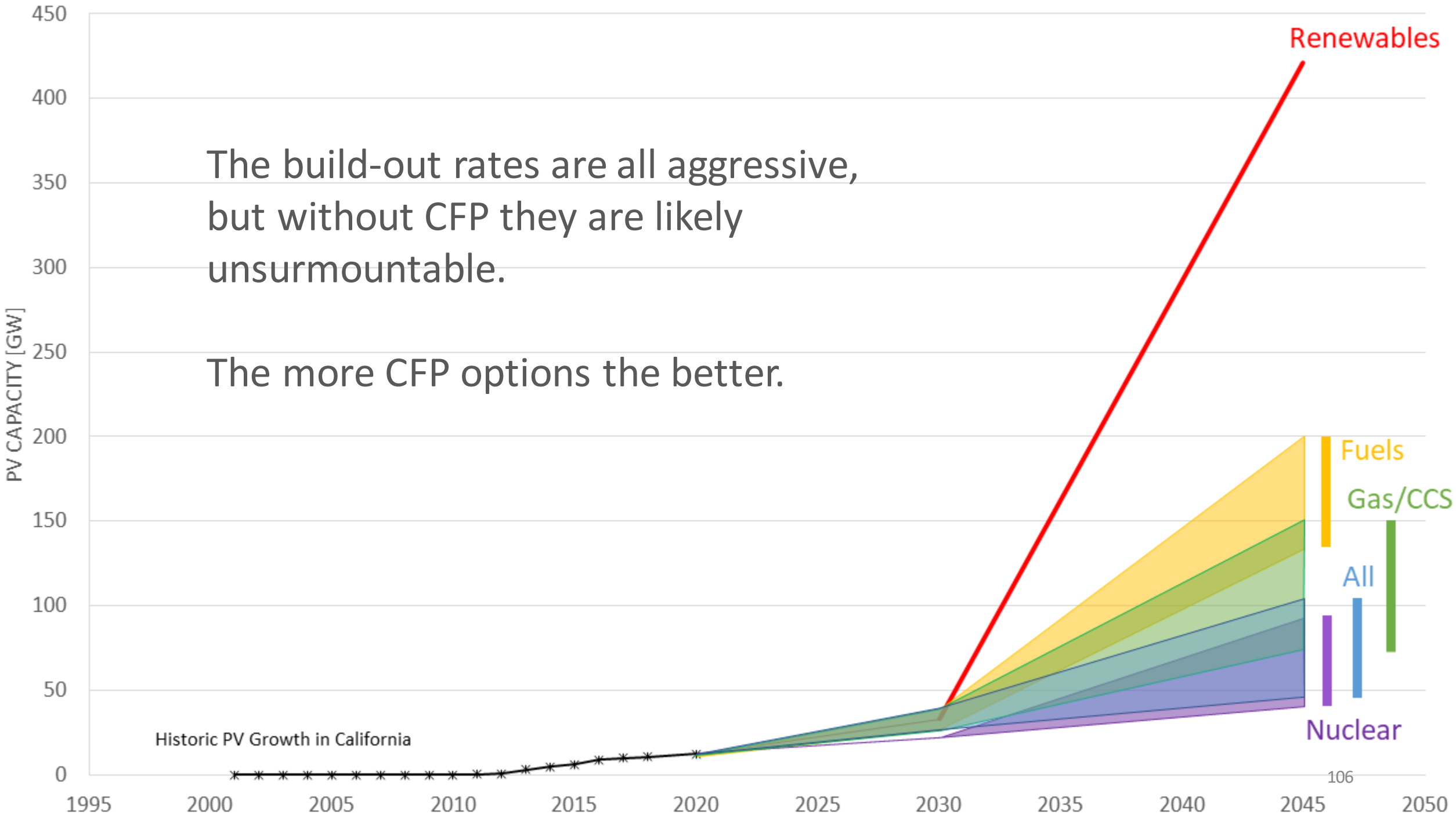
Figure 2. California monthly average wind and solar output in 2016. Reproduced from data in CAISO (2017a, Figure 1.8).

SB100: Pathways to Success

A collaborative study by EDF, CATF, E3, Stanford & Princeton

www.edf.org/cleanfirmpower





The build-out rates are all aggressive,
but without CFP they are likely
unsurmountable.

The more CFP options the better.

Historic PV Growth in California

Fuels

Gas/CCS

All

Nuclear

Issue		With Clean Firm Power	Without Clean Firm Power
Costs for generation and transmission <i>California transmission and distribution costs are currently about 9 cents/kWh</i>		~9 cents/kWh	~15 cents /kWh
Solar and Wind Capacity <i>Entire U.S. electric generating capacity is ~1100 GW</i>		25 – 200 GW	470 GW
New Storage* <i>Largest battery facility now being built is 0.3 GW /1.2 GWh. CA expects to have 2 GW battery capacity in 2021</i>	New short-term battery capacity	20 -100 GW	160 GW
	New Energy storage	100-800 GWh	1000 GWh
Land Use <i>CA land area is ~164,000 sq miles</i>		625- 2500 sq miles	6250 sq miles
Transmission <i>CA currently has ~ 15 million MW-miles of transmission</i>		2 – 3 million MW-Miles	~9 million MW Miles

**Energy storage beyond existing pumped hydro*

Concluding Remarks



- Can we do USG safely? Yes, with proper regulation and monitoring
- Do we need gas storage in the next decades? Yes, highly likely
- Do we need all the gas storage facilities we have? Maybe not, some facilities are riskier than others and some are more useful than others
- Will we need gas storage in the future: very likely , but not necessarily for natural gas. Could be hydrogen, biofuel or CO2
- Do we need a plan? **Yes**, we need an integrated, decarbonized energy plan that accounts for both **capacity** and **reliability** over **all seasons** for all sectors: **Electricity + Heat + Transportation**

Mark Pocta

Cal Advocates



Questions or
comments?

Submit
questions in the
chat or raise
your hand



**BREAK
TIME !!**

The California Gas Utility Obligation to Serve Customers

Jonathan Bromson, Principal Counsel
California Public Utilities Commission

Gas Plant, Gas Corporation, ...

- CA PU Code § 221: “Gas plant” includes all real estate, fixtures, and personal property, owned, controlled, operated, or managed in connection with or to facilitate the production, generation, **transmission, delivery, underground storage, or furnishing of gas,** natural or manufactured, except propane, **for light, heat, or power.**
- CA PU Code § 222: “Gas Corporation” includes **every corporation or person owning, controlling, operating, or managing any gas plant for compensation within this state,** except where gas is made or produced on and distributed by the maker or producer through private property alone solely for his own use or the use of his tenants and not for sale to others. (and then exception for landfill gas producers)

... Public Utility

- CA PU Code § 216 (a) – (b)
- (a) **“Public utility” includes every** common carrier, toll bridge corporation, pipeline corporation, **gas corporation**, electrical corporation, telephone corporation, telegraph corporation, water corporation, sewer system corporation, and heat corporation, **where the service is performed for, or the commodity is delivered to, the public or any portion thereof.**
- (b) **Whenever any** common carrier, toll bridge corporation, pipeline corporation, **gas corporation**, electrical corporation, telephone corporation, telegraph corporation, water corporation, sewer system corporation, or heat corporation **performs a service for, or delivers a commodity to, the public or any portion thereof for which any compensation or payment whatsoever is received,** that common carrier, toll bridge corporation, pipeline corporation, **gas corporation**, electrical corporation, telephone corporation, telegraph corporation, water corporation, sewer system corporation, or heat corporation, **is a public utility subject to the jurisdiction, control, and regulation of the commission and the provisions of this part.**

Michael Wara
Stanford Law School

Equity Considerations: Duty to Serve



CALIFORNIA
ENVIRONMENTAL
JUSTICE ALLIANCE

*Jan. 24, 2022: Long Term Gas Planning
Rulemaking, Track 2 Workshop*



CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE



Importance of the Duty to Serve

When it comes to access to clean water, “race is still the strongest determinant,” report says. NBC News, Nov. 27, 2019

Racial disparities persist in electrical services. Is ‘willful blindness’ to blame?, Energy News Network, July 1, 2020

The Race Gap in Residential Energy Expenditures, Energy Institute at Haas, Eva Lyubich, June 2020.

Overview of California's Duty to Serve Requirement

Utilities must “furnish and maintain...adequate, efficient, just, and reasonable service” for customers in their service territories. Section 451 of the Public Utilities Code.



Substituted service must be:

Adequate

Efficient

Just

Reasonable

A Managed Transition is Needed

- ▶ Without active planning and management, the combination of reduced gas usage, increased costs, and a declining customer base will result in exponentially higher gas rates, along with a disproportionate burden on customers unable to afford to implement electrified technologies.... *The reactive path is most likely to hurt those least likely to afford the transition: low-income residents. The smart, managed path must consider equity and protect customers from unaffordable gas bills by enabling them to electrify.*
- ▶ Gridworks, California's Gas System in Transition Report.

Equity Must Be Centered for Substitution to be Just, Reasonable, Adequate, and Efficient

- ▶ Must break down the barriers faced by disadvantaged communities and low-income households:
 - ▶ Structural Barriers: low-ownership rates , insufficient access to capital, building age, and remote or underserved communities;
 - ▶ Policy Barriers: market delivery, program integration, data limitations; and
 - ▶ Other Barriers: energy burden, disconnections and access to services and technologies.

See CEC SB 350 Barriers Report.



To Design an Adequate, Reasonable, and Just Substitution, Community Input and Outreach Is Critical.

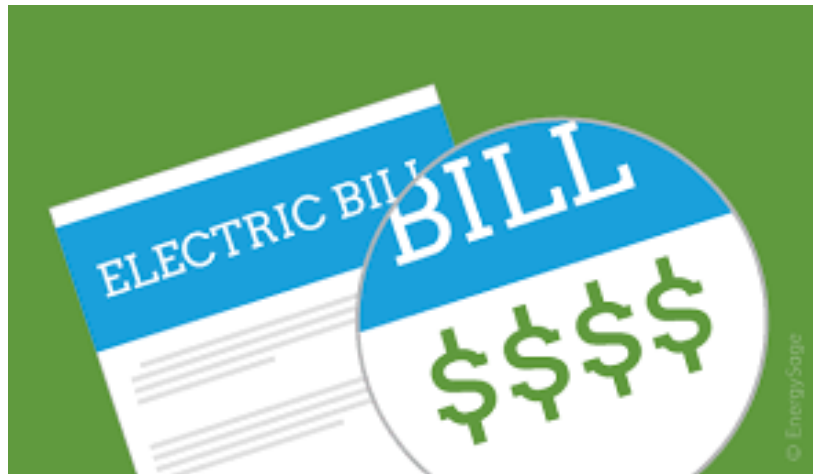
- Examine San Joaquin Valley Pilots and Initiate More Pilots to Study Other Communities



A Just, Reasonable, and Adequate Substitution Should Include Assistance with Capital Investments

- ▶ Capital costs are likely prohibitive for many low-income households.
- ▶ Assistance should include help with upfront appliance costs, and methods as well as programs that help lower cost in such as energy efficiency and solar installation.
- ▶ Existing programs should be leveraged and can be targeted to electrify communities.

A Just, Reasonable, and Adequate Substitution Should Include Bill Protection



- ▶ Low-income households that substitute service and electrify need assurance that bills will not increase.
- ▶ High energy bills can create health risks.
- ▶ Many households struggle to afford energy bills already.
- ▶ Similar to the pilots for the San Joaquin Valley proceeding, households that substitute electrical appliances should ensure bill savings and affordability for participants.

The Substitution Should Include Tenant Protection

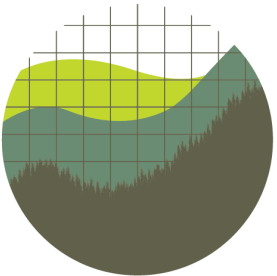


- ▶ Need to protect tenants from displacement if their building is decarbonized.
- ▶ Should include consideration of:
 - ▶ Protection against rent increases and
 - ▶ Protection against eviction for a period of time after the appliance installation.

Gas Utilities' Obligation to Serve in New York State

Justin Gundlach
Senior Attorney

California Public Utilities Commission
Jan. 24, 2022



Institute *for*
Policy Integrity

NEW YORK UNIVERSITY SCHOOL OF LAW

Overview

1. Utility law
2. Climate law
3. Recent Commission actions show that legislative change is needed
4. Suggested legislative changes

HARMONIZING STATES' ENERGY UTILITY REGULATION FRAMEWORKS AND CLIMATE LAWS: A CASE STUDY OF NEW YORK

*Justin Gundlach and Elizabeth B. Stein**

Synopsis: Several states have recently passed legislation mandating ambitious levels of economy-wide greenhouse gas emissions reductions. Maine and New Jersey have each adopted “80 x 50” mandates, meaning that they set 2050 as the deadline for reducing annual emissions by 80% from their level in a benchmark year. Colorado’s mandate calls for a 90% reduction by 2050. California adopted a 40% by 2030 mandate in 2006 (later supplemented by executive orders directing state agencies to aim for “80 x 50” and then net-zero emissions by 2045). New York has adopted the goal of net-zero emissions by 2050, with an underlying annual emission reduction mandate of at least 85% below 1990 levels. Massachusetts resembles New York, but its 2008 legislative mandate both called for an 80% reduction by 2050 and authorized updates by the Secretary of State, who in April 2020 announced a net-zero target for 2050 and mandated a reduction in annual emissions to at least 85% below 1990 levels. More state mandates are likely to be adopted in the coming years by legislatures across the country. While the laws establishing these state mandates authorize agencies to adopt new regulations and, in some cases, create ways to challenge inconsistent agency action, they do not spell out what to do about existing laws that require, authorize, or subsidize the development and use of infrastructure designed to enable the consumption of fossil fuels. Thus, these laws add a new layer of legislation to the landscape, but fail to excavate the foundations of existing, countervailing laws that are likely to impede to some degree the realization of the new legislation’s basic objective.

Each jurisdiction mentioned above is home to examples of this dissonance, but, since its effective date of January 1, 2020, New York’s Climate Leadership and Community Protection Act has provided an especially clear example of a new emissions-reduction mandate at cross-purposes with an area of existing law and policy, namely residential customers’ access to gas for use in buildings and the development and maintenance of related gas distribution infrastructure in New York. This article concentrates on New York’s situation to illustrate how these

* Justin Gundlach is a Senior Attorney at the Institute for Policy Integrity at NYU School of Law. Elizabeth B. Stein is Lead Counsel of Energy Transition Strategy at Environmental Defense Fund. In this article, the authors speak for themselves; the text does not express the views of NYU School of Law or EDF. The authors thank Ben Allen, Dale Bryk, Michael Colvin, John Finnigan, Michael Gerrard, Jayni Hein, Natalie Karas, Kevin Lang, Erin Murphy, Bethany Davis Noll, Christine Pries, Richard Revesz, and Noah Shaw for their comments and suggestions on earlier drafts. All conclusions and errors are the authors’ own.

* *New York Urgently Needs to Harmonize Its Energy Utility Regulation Framework with Its New Climate Law*, published by the authors in the October issue of the Environmental Law in New York newsletter, covers some of the same material as this article.

Utility law

- Public Service Law
 - § 30: Provision of gas is “in the public interest”
 - § 31: Service (new or restored) available upon request; 100’ rule
 - Implementing regulation effectively extends this rule
- Transportation Corporations Law § 12: similar but for commercial customers

Climate law

Climate Leadership & Community Protection Act

- Economy-wide emissions reductions: 30 x 2040, 85/net-zero x 2050
- Most details tbd by the Climate Action Council*
 - Final version of Scoping Plan due Dec. 31, 2022
 - Detailed emissions reduction regs due 2024
- Agencies must “consider” whether actions align with overarching emissions targets and “justify” actions that don’t

** deployment targets for the power sector are specified in the legislation*

Commission actions show that legislative change is needed

- Gas planning proceeding, 20-G-0131
 - Primary purpose: head off additional moratoria on gas hookups
 - Highlights: we plan now; more transparency; gas distribution infrastructure project screen to include emissions assessment
 - Scope = cramped
- Rate case 19-G-0309
 - “the [Climate Action] Council has yet to define the path New York will take with respect to CLCPA implementation, including not yet providing guidance on the potential tension between the overarching CLCPA’s mandated emission reductions and the mandate of the PSL to ensure safe and reliable service and the obligation to provide service where feasible”

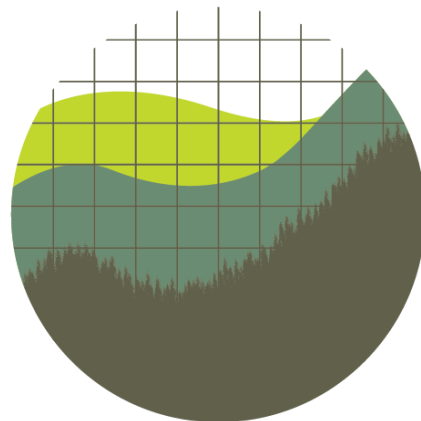
Suggested legislative changes*

- Clarify that the obligation to serve operates subject to and within context defined by emissions reduction commitments
 - so, where CLCPA & PSL are in tension, CLCPA prevails
- Delete “gas” from list of resources said to be provided “in the public interest”
- Eliminate the “100-foot rule” (and its regulatory extension) for gas, but keep it for electric service
- Eliminate all express or implied presumptions of permanence for gas service
- Eliminate obligation to restore suspended gas service

** don't credit me with all of these!*

My contact info:

justin.gundlach@nyu.edu
@JMGinNYC



Institute *for*
Policy Integrity

NEW YORK UNIVERSITY SCHOOL OF LAW

Clarifying California Utilities' Obligation to Serve

Long-Term Gas System Planning Workshop

January 24, 2022

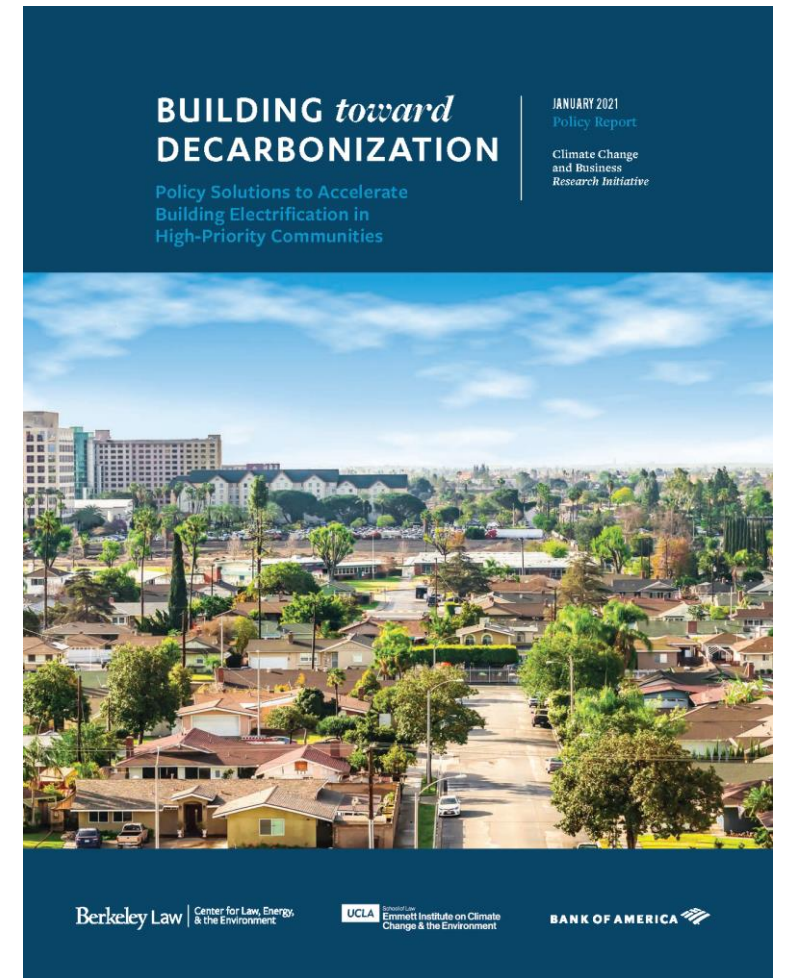
Ethan Elkind and Ted Lamm

Center for Law, Energy & the Environment (CLEE)

UC Berkeley School of Law

January 2021 Policy Report: Building Toward Decarbonization

- CLEE/UCLA Law expert convening
- High-priority areas: lower-income and disadvantaged communities and new construction
- Top barriers: lack of consistent state policy and stakeholder limitations
- Top solutions: EO/legislative timelines and clarification on obligation to serve



<https://www.law.berkeley.edu/wp-content/uploads/2021/01/Building-toward-Decarbonization-January-2021.pdf>

Clarifying the Obligation to Serve

Barrier: requirement to provide gas service to any customer

Cal. Public Utilities Code § 328(a): “In order to ensure that all core customers of a gas corporation continue to receive safe basic gas service in a competitive market, each existing gas corporation should continue to provide this essential service.”

Cal. Public Utilities Code § 328.2: “The commission shall require each gas corporation to provide bundled basic gas service to all core customers in its service territory....”

Cal. Public Utilities Code § 451: “Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service....”

Clarifying the Obligation to Serve

Question: How should the monopoly local distribution companies' "obligation to serve all customers who want service" be defined, given the state's decarbonization goals? What statutory and policy changes, if any, are needed to effectuate such a definition?

Answer:

- State legislation to amend the Public Utilities Code
- Clarify utility's obligation to serve relates to energy services—heat, light, and power—and not specifically to natural gas or any other fuel

Clarifying the Obligation to Serve

Key Considerations

- Customers' right to service is only as valuable as ability to access and afford that service
- Mitigate cost of retrofits and provide appropriate phase-in periods
- Acknowledge history of service denial in lower-income and rural communities – gas service as “hard-won right”
- Address equity – financial capacity for electrified appliances
- Alternative: legislation offer reasonable compensation (utility or state funds) for the cost of conversion to electricity, triggering an end to a gas-specific obligation.

Contact

eelkind@law.berkeley.edu

tlamm@law.berkeley.edu

www.law.berkeley.edu/research/clee

Questions or
comments?

Submit
questions in the
chat or raise
your hand



Delphine Hou
California Independent System
Operator



Long Term Gas Planning Rulemaking: Gas OIR Track 2a Workshop

Marci Palmstrom – Director, Trading & Market Operations

January 24, 2022

i. Should the Commission require the achievement of certain milestones (e.g., replacement energy resources are built and operational) before a significant natural gas asset is derated or decommissioned to ensure energy reliability, equity, workforce planning, and other policy goals are maintained and/or achieved throughout this transition?

- Caution against adopting specific milestones that may create more hurdles in making progress toward the State's goals
- General considerations include:
 - Alignment with the CPUC's reliability requirements and development risk of expected new electric generation
 - Alignment with statewide milestones and policy initiatives (*i.e.*, IEPR, building electrification, zero emissions vehicle sales)
 - Coordination with CAISO local reliability needs to ensure grid stability
 - More comprehensive understanding of winter reliability needs
- SCE is committed to helping California reach its long-term decarbonization and GHG reduction goals, which will require a significant reduction in gas usage in all sectors and a sizeable increase in transportation and building electrification



Questions or
comments?

Submit
questions in the
chat or raise
your hand

Near-Term Zonal Electrification Project Submittal Recommendations

January 24, 2022

David Sawaya – Sr. Manager, Decarbonization Strategies

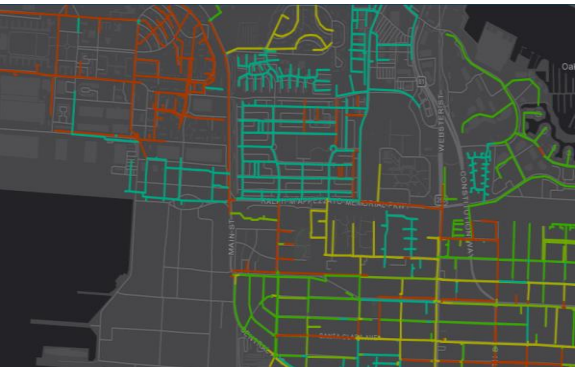
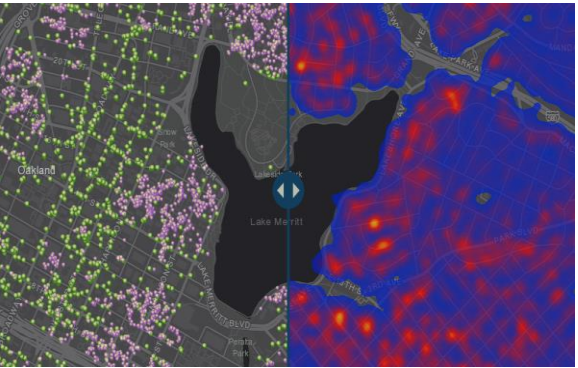


Together, Building
a Better California

- Should the Commission establish a mechanism for streamlined approval of cost-effective, time-sensitive zonal electrification?

PG&E'S ANSWER: YES!

- If so, what should this mechanism be?



- To date, PG&E has completed 4 small-scale zonal electrification projects, offsetting ~\$4 million in planned gas project costs.
- Conducting similar projects at a larger scale will require addressing issues related to obligation-to-serve, customer acceptance, and funding.
- PG&E can identify high-potential zonal electrification candidates using a range of data related to the gas system, customer propensity, policy, and other factors
 - No single piece of data is sufficient to identify promising candidates
 - In all cases, locations need to be validated by detailed engineering review
- Modified accounting treatment for the cost of electrification and a streamlined project application approval mechanism would enable PG&E to more broadly undertake zonal electrification projects.

1. Streamlined and replicable process

2. Informed by clear guidance on what is considered “cost-effective”

3. Supported by equitable cost recovery



1. Streamlined and Replicable Process

Application Type	Estimate of Timing to Application Approval	Applicability for Zonal Electrification Projects
Application/ Expedited Application	12+ months	Slower process that involves stakeholder input. Best for complex projects that need additional funds allocated.
Tier 3 Advice Letter	6+ months	Pre-formatted advice letter templates would ease administrative burden.
Tier 2 Advice Letter	1+ months	Ideal process for projects where funds are already approved and project speed is critical.

- Approval process must emphasize speed.
- Potential precedent: Transportation Electrification Framework, Demand Response Emerging Technologies (DRET), Electric Program Investment Charge (EPIC) Investment Plan.
- Include considerations on how process would need to adapt for single fuel utilities or for non-cost-effective projects.



2. Provides Clear Guidance on What is Considered “Cost Effective”

	Cost of Status Quo Pipeline Replacement (\$M)		Cost of Electrification Alternative (\$M)	
	NPV	PVRR	NPV	PVRR
<i>Phase 1</i>	5.66	7.86	14.59	20.25
Phase 2	4.89	6.79	3.74	5.20
<i>Phase 3</i>	3.87	5.37	6.32	8.78
<i>Phase 4</i>	2.93	4.06	5.01	6.95
<i>Phase 5</i>	1.28	1.77	1.28	1.77

- What is a successful zonal electrification project and how does the Commission define “cost effective?”
- What costs should be included?
- Should the utility consider any externalities or benefits, such as GHG reduction?
- Is there external funding that could be leveraged to help with near term opportunities that are not strictly cost-effective?

3. Provides Clear Guidance on Equitable Cost Recovery



The Commission should consider:

- How should costs associated with zonal electrification be recovered?
 - Capital vs expense
- Are costs recovered from gas ratepayers? Electric ratepayers?
- How should cost recovery differ for joint utility jurisdictions or areas with CCAs?
- What about projects that span multiple General Rate Cases? Or projects that are not included in a GRC?

Thank You

David Sawaya – Sr. Manager, Decarbonization Strategies



Together, Building
a Better California

Long Term Gas Planning Workshop

Rulemaking 20-01-007

January 24, 2022

Michael Colvin

Director, California Energy Program

Should the Commission establish a mechanism for streamlined approval of cost-effective, time-sensitive zonal electrification? If so, what should this mechanism be?

- Zonal electrification could be an important strategy for decarbonization.
- The Commission will need to give the utility specific guidance in this Rulemaking on some key issues so that expedited action can occur

UNTARGETED ELECTRIFICATION

(No retirements)



TARGETED ELECTRIFICATION

(Targeted retirements)



Mixed fuel house
(Natural gas and electric)



All electric house

- Targeted electrification can allow for the decommissioning of a gas asset
- This will require the utility Application to show targeted marketing, education and outreach
- Focus on different building stocks, ownership models

UNTARGETED ELECTRIFICATION
(No retirements)



TARGETED ELECTRIFICATION
(Targeted retirements)



- The embedded book value on the asset should be a key criterion
- Beyond cost effectiveness, zonal electrification can be a key strategy to manage stranded cost
- Give the utility certain embedded cost thresholds for expedited processing

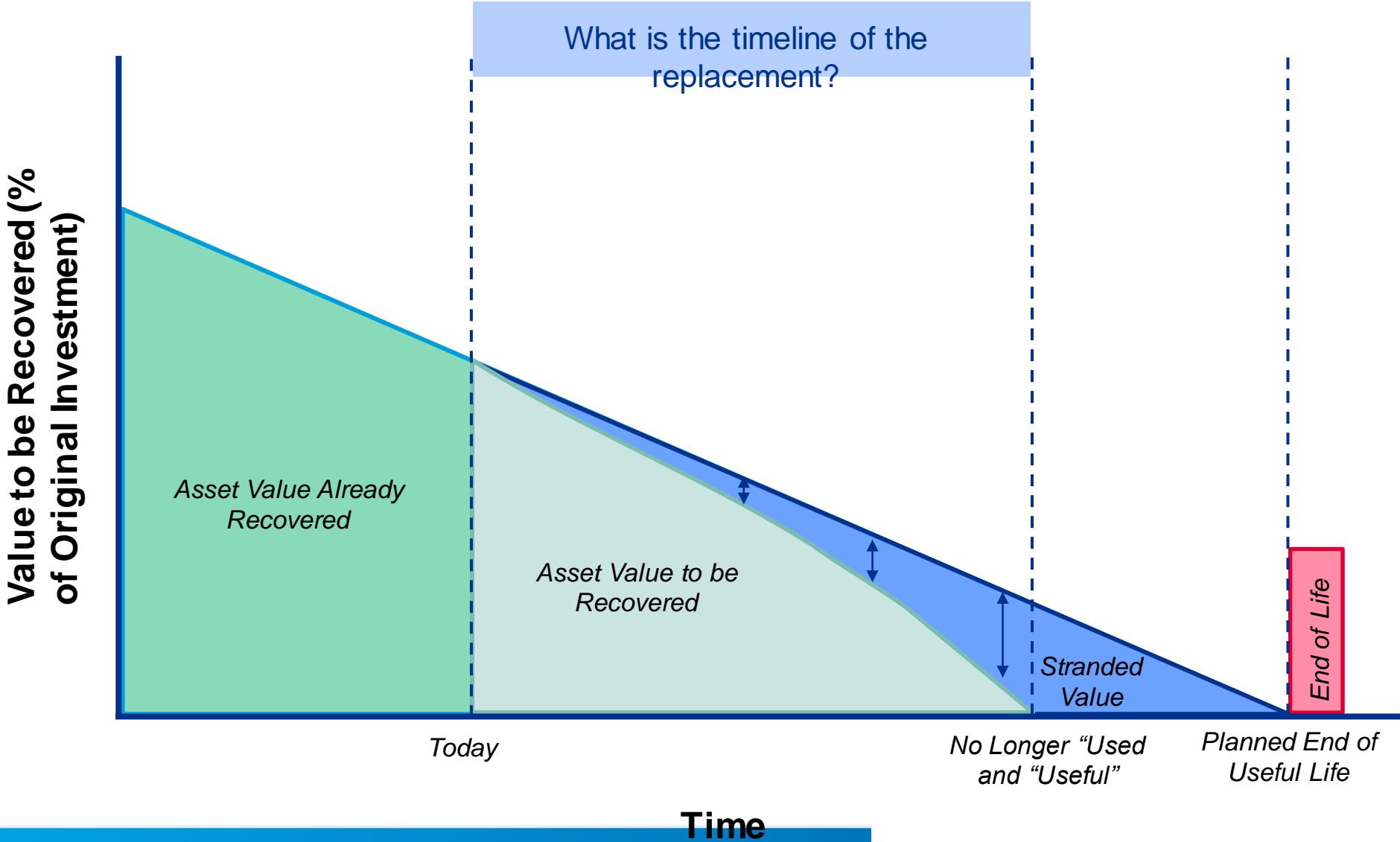


Mixed fuel house
(Natural gas and electric)



All electric house

Avoiding stranded assets



Key places for Application Guidance

- Utility should be prepared to submit an Application that specifies the following:
 - Number of CARE customers to be treated
 - Number of customers located in a DAC
 - Estimate book value of retired asset
 - Estimate of average customer savings on energy burden
 - (electric increase, overall energy bill will decrease)
 - Explanation of what is prompting time-sensitivity

Thank you!

Michael Colvin

mcolvin@edf.org

(415) 293-6122



Questions or
comments?

Submit
questions in the
chat or raise
your hand



Final Comments
and Q&A for All
Panelists

Submit
questions in the
chat or raise
your hand

Closing Remarks

- Energy Division staff will publish a workshop report in February. Parties will have an opportunity to provide comments on the staff report.
- Thank you!